# The Journal of the American Medical Association

VOL. XXIV. CHICAGO, JUNE 8, 1895. No. 23.


## ORIGINAL ARTICLES.

### HYDROTHERAPY IN FEVERS, ITSRATIONALE AND TECHNIQUE.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.


BY ALBERT H. BURR, PH.B., M.D.

PHYSICIAN TO PROVIDENT HOSPITAL, CHICAGO, ILL.


In every febrile condition, whatever its specific cause, there is exhibited a complexity of abnormal physiologic activities, a reaction of the animal system dependent upon the essential properties of protoplasm and nerve energy. The most obvious of these disturbed functions common to all febrile conditions are: increased oxidation, elevation of temperature, increased though still inadequate elimination of waste products, increased frequency and weakened force of the respiratory and cardiac impulses, perverted metabolism and loss in muscular tone and neural vitality.

Heat energy in the healthy body is the result of chemic change in its proteids, fats and carbo-hydrates through processes of oxidation. Welch in his Cartwright Lectures, maintained that the production and dissipation of heat is kept in equilibrium in health by the direct control of a heat-regulating nervous system. He affirms that "fever producing agents act directly or indirectly upon this nervous mechanism which regulates the harmonious relations of heat loss and heat production." In like manner we may conclude that all the disturbances of physiologic functions manifested in the state we call fevers are, in reality, so many symptomatic expressions of a toxic derangement of neural resistance and neural control.

The efficiency of any measure instituted for the treatment of these functional disturbances will depend upon the reliability of our knowledge of the invading causes and the processes by which these disturbances are accomplished. All therapeutics aimed at symptoms or effects instead of seeking to remove or limit these causes where possible, or to reinforce neural resistance and control against them are certainly irrational and may be worse than useless. The search for specific remedies carried on for ages has brought to light but two that approach specific results in fevers. With all our increased knowledge of the special germs which produce each characteristic form of febrile disturbance, we are still unable to expel the invader and, with the exceptions noted above, the relentless warfare is continued until immunity is established on one hand, or, on the other, death ends the conflict. During these ages the battle has been waged against that chief symptom and bugbear, elevated temperature. The patient has been depleted by purgatives and venesection; he has been starved and sweated by turns; the nervous energy of his heart has been depressed by cardiac sedatives to lower his temperature. The introduction of the coal-tar antipyretics marked the culmination of the antithermic craze. Experience has taught every teachable physician that only harm can come from artificial antipyretics. It has been demonstrated that they impair neural resistance and control, that they obtund nerve sensibility and retard metabolism and the elimination of normal waste and morbid products.

Pyrexia may be considered normal to every febrile disease. Indeed, it may be one of nature's conservative processes in the systemic reaction of protoplasm and nerve energy against the offending infection. It may be a useful ally in combating, limiting or destroying the invading microbe, just as inflammation through processes of reaction throws up its defensive walls to the enemy. If this be true, the normal temperature of any febrile affection can not be interfered with by direct artificial antipyretics without injury to the patient. Normal reduction of temperature must be secondary and a natural sequence to the limitation or removal of the trespassing cause.

The treatment of fevers by the cool bath is as old as the teachings of Hippocrates, and yet so new, by reason of the apathy of the profession and neglected study of its rationale, that even most medical teachers and writers of text-books seem to understand but imperfectly the scope of its physiologic actions and its therapeutic possibilities.

Hydrotherapy properly used in fevers is not hydropathy, is not a panacea, is not primarily antipyretic, is no longer empiricism. The classical demonstrations of Winternitz, Voit and Schüller in Europe; of Baruch, Draper and Thayer in America, have clearly defined the basis of its physiologic action and placed it in the front rank of rational therapeutics. A brief summary of their investigations shows that the cardinal principles of the physiologic action of the cold bath in fevers depend:

1. On the physical properties, thermic and mechanical, of water itself acting directly as neural stimulants. Water absorbs heat and parts with it quickly. It may be applied in solid, liquid or gaseous form to the whole body or any part of it. Its application may be continuous or intermittent, alternating from hot to cold, or modified by any desired temperature or pressure. In short, we have always at command a most flexible agent with which to meet a wide range of indications.

2. On the susceptibility of the sympathetic nervous system to these stimulants and its control over the vascular and glandular organs of the body. This stimulative action takes place primarily on the cutaneous surface. The skin is a threefold organ, at once the richest in sensory nerves, the greatest in vascular expansion, and the largest in glandular supply of all the organs of the body. What a field for therapeutic operation! How easy of access and how

quick to respond! Every physician has noted the effects of the rapidly alternating cold and hot bath in resuscitating the asphyxiated newborn babe. No harm results to the delicate infant; no one charges cruelty when these extremes of thermic effects are thus employed. In syncope what can bring the flush to the pallid cheeks and reëstablish respiration so quickly as a stimulating dash of cold water upon the face? In hysterical paroxysms how quickly the explosions of an unstable nervous condition give way to perfect control through tonicity imparted by the same mechanical and thermic effects of water. We need not multiply instances to show that the stimulating properties of water, appropriately used, are responded to by prompt and definite physiologic activities.

3. On the reflex action of the stimulated nerve centers, on (*a*), respiration; (*b*), circulation; (*c*), metabolism; (*d*), elimination; and (*e*), pyrexia.

(*a.*) Stimulation of respiratory centers is the first and immediate reflex action from the application of cold water to the cutaneous surfaces. Deep spasmodic inhalations take place and improved oxygenation of the blood is at once manifest.

(*b.*) Circulation is quickened by reaction on the cutaneous vascular system, which is heightened by friction. In this way the relaxed capillaries are given muscular tone and are successively emptied and filled by cutaneous massage. The impulses thus set up are conveyed throughout the whole vascular system, relieving stasis and organic congestion, and in conjunction with improved respiration stimulate the cardiac centers and a slower, steadier strengthened impulse of the heart is definitely established. The effect on the circulating medium itself is still more wonderful. Winternitz, at the International Congress at Rome last spring, gave the results of some recent investigations of thermic effects on the composition of the blood in health. He demonstrated that all applications of cold to the entire or greater portion of the surface of the body, when proper reaction was secured, led to three remarkable results, viz., an increase in the number of leucocytes, an increase in the percentage of hemoglobin and an increase in the specific gravity of the blood. Local applications of cold, followed by reaction, accomplished the same results in the local blood supply. This affords us now for the first time a rational instead of empirical basis for the employment of cold compresses and poultices.

Thayer, of Johns Hopkins, has shown that blood drawn from the lobe of the ear of a typhoid fever patient after a Brandt bath, had three times the number of leucocytes as blood drawn from the same source just previous to the bath. It is not credible that so great an increase in the number of leucocytes can take place by reproduction in so short a time, but it is probably accounted for by the increased activity of the circulation, under the stimulus of cold and friction which sweeps them from out-of-the-way places into the quickened circulation. (Baruch).

(*c.*) Metabolism, both constructive and destructive, is greatly promoted. This is a natural sequence of the improved blood supply carried to the glands and tissues. Schwann first employed the term to express the changes wrought by living cells upon substances coming in contact with them. This is constructive through nutrition and destructive through tissue change. The action of the leucocytes, may be considered a form of destructive metabolism and takes place in the blood, glands or tissues wherever the toxins and microbes of fevers are found. The investigations of Vaughn and others show that the antitoxic and antiseptic effects of the blood are due to leucocytes and their nucleins derived from their cell contents. When leucocytosis was increased the antiseptic and antitoxic power of the blood was also increased. If, then, it is established that cold baths, under proper reaction, increase these leucocytes in the circulation even to threefold, then the destruction of microbic products must be wonderfully increased.

(*d.*) Elimination of toxic products through the emunctories is increased by the improved functional activity of all of these organs, as a result of increased pressure, and improved blood supply. Juergensen demonstrated that the specific gravity of the urine was increased after the cold baths through increase of urea. Roque and Weil demonstrated that the toxicity of the urine was increased sixfold after the Brandt baths in typhoid fever, while by the expectant plan of treatment it was only twofold, and when antipyretics of the coal tar series were used it was the same as or even less than that of normal urine. Liebermeister and Voit showed that cold baths in fevers greatly increased the elimination of carbon-dioxid by the lungs.

(*e.*) Pyrexia is a symptomatic expression of a toxic derangement of neural resistance and control. When the nerve centers begin to recover from the profound intoxication which has disturbed neurotic equilibrium, abnormal temperature begins to subside. Heat reduction, therefore, is a resultant of the combined effects of the cold baths on respiration, circulation, metabolism and elimination. It begins to approach the normal status in direct proportion to improvement in these physiologic processes, and is secondary and incidental to them. Nor is heat reduction due in any considerable degree to heat abstraction. If it were so the temperature would begin to rise again as soon as the cold applications were discontinued. On the contrary, I have observed time and again that the temperature continues to fall until it reaches the lowest point in one to one and a half hours after removal from the Brandt bath, in typhoid fever. By repeating the bath *pro re nata*, as indicated by the toxic effects on the general condition of the patient, to which the temperature alone is not always an infallible guide, we can more safely and definitely enhance the resistance of vital forces against toxic agencies and promote their elimination than by any known symptomatic drug treatment. As the surgeon gives free and open drainage to the products of infection in a septic cavity so may the physician, by cold baths with reaction, favor the physiologic drainage of toxins from a body charged with thermogenic poisons. It is a mistake, and a generally prevalent one also for which our text-books are largely at fault, to regard the cold water treatment of fevers, especially that of Brandt in typhoid as an antipyretic measure chiefly. Hence resort is had to less troublesome but more dangerous means of reducing temperature. Pepper's System of Medicine, vol. I, p. 327, says concerning the various applications of cold water in typhoid fever: "They all act in the same manner and depend for their efficacy upon their power of abstracting heat from the body and are useful just in proportion as they do this."[1]

[1] Pepper, Vol. 1, pp. 117-118, last edition, 1893: Undoubtedly, one of

Nothing can be more misleading. Brandt, who published his paper on "Hydrotherapy in Typhoid Fever," in 1861, made no such claim for his treatment. He attributed its benefits to the stimulative effects primarily with fall of temperature as a secondary result. Heat reduction in continued fevers *per se* is of little practical value. It is not heat but poison which is the disturbing element. Heat is a symptom, one of the effects of the operating toxemia. Heat reduction in itself can not eliminate toxins or destroy microbes, and all therapeutic measures used for antipyretic effects which do not limit or remove disturbing causes, are both unscientific and absolutely dangerous. Experiments just cited prove that artificial antipyretics are worse than useless, in that they retard toxin elimination.

Upon these deductions rest the claims of hydrotherapy as a rational and scientific treatment in fevers. If we have rightly interpreted the physiologic activities which are stimulated by the appropriate thermic and mechanical effects of water, then we have at hand an agent universally adaptable to the treatment of all thermogenic diseases. No known drug remedy can so quickly and definitely influence the functional activities of living cells in nerve, gland or muscle, or protoplasm itself, as water when appropriately used in fevers.

If clinical experience is the highest court of appeal in all therapeutic questions surely the evidence is overwhelming, and the medical profession of America must stand convinced of its truths, and convicted for its apathy towards so great a life saving measure. It is not the province of this paper to give the clinical evidences, statistics and opinions of eminent men who have had large experience with hydrotherapy in fevers. We refer to the latest editions of Strümpel, Hare, Osler and that most excellent little book, "Uses of Water in Modern Medicine" by Simon Baruch.

It is sufficient to say that in over one hundred thousand tabulated cases of expectant treatment of typhoid in hospitals, the mortality has been 21.8 per cent. With mixed treatment consisting of medicines and the cold bath, more or less fully carried out, the percentage of mortality has decreased just in proportion as efficient bath treatment predominated. Under strict cold bathing alone, in over three thousand cases a mortality is recorded of 1.8 per cent. Brandt reports 2,150 cases where this treatment was begun before the fifth day, without a single death.

It is conclusive that the earlier this treatment is instituted the more favorable the results. My own practice is not to wait for a diagnosis but to institute some appropriate bath for all fever patients at once. Nothing but good can come of it, no matter what the diagnosis, and in the event of typhoid everything is to be gained. Where the life of the patient is in jeopardy no unavoidable risks can be taken by the attendant, without censure.

### TECHNIQUE.

The technique of hydrotherapy in fevers has been fully described and illustrated by the authors just cited, but apparent difficulty in carrying out proper measures in general practice has led the majority of the profession to believe it practicable in hospitals only. Accordingly halfway measures, like ablutions, spongings and cool packs are substituted. Measures which in no way meet the indications of the full bath. Others ignore bathing in any efficient form and still adhere to the expectant plan or to symptomatic medical treatment, with indifference to the old-time mortality.

The most efficient of all hydrotherapeutic measures

Fig. 1.—Frame folded.

in the treatment of fevers is the full bath. There are certain obstacles in the way of putting it into practical use, chief of which are:

1. Entire absence of, or imperfect facilities in, the home for giving the full bath.
2. Dangers and annoyance to the patient, from handling to and from the tub, in another room, or even at the bedside.
3. The exhaustive labor imposed on attendants.
4. The objections and prejudices of patient and friends to the discomfort of the plan as ordinarily carried out.

To overcome these by no means trifling objections

Fig. 2.—Frame open.

I have devised a portable folding tub for use in the bed of the patient, which I believe will commend itself at once for the ease with which it may be employed under all circumstances with the utmost comfort to the patient and attendants and prove a valuable addition to the technique of cold baths in fevers. It consists first, of a large rubber sheet with rings attached by elastic tapes near its margins; and of a crib-like wooden frame with fastenings along the outside of the lower rail, to hold the sheet when in use. This frame can be folded into a space two by three inches by eight feet long when not in use. The accessories are a three-quarter inch hose with a metal elbow for a siphon, a bath thermometer and a sponge of good size.

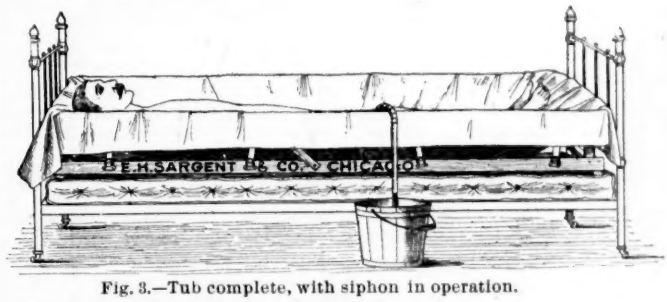


Fig. 3.—Tub complete, with siphon in operation.

In use, the sheet is first slipped under the patient and brought up over the pillow, and its edges tucked up alongside the body. The frame is then unfolded and placed down over the patient, pillow, rubber sheet and all. The edges of the sheet are now drawn up over the top rail of the crib and down the outside to the lower rail where it is held fast by its rings. This completes a light and perfect tub capable of holding twenty gallons of water, if desired, and capable of being emptied quickly by the large siphon.

The bath is now initiated with the patient resting

the most important indications which must be met in the great majority of cases of typhoid fever is that for reduction of temperature. A large proportion of this mortality (in typhoid) comes directly or indirectly from the baleful influences of the pyrexia. The only way in which this can be met safely and effectually is by the external use of cold water.

Flint: Of all therapeutic measures those directed toward the reduction of the fever take the first rank. Pp. 929, edition 1894.

comfortably on his own mattress and pillow, with but slight disturbance. Any gradation of temperature from 90 degrees down to 65 degrees may be employed, or changed rapidly or slowly as desired, while friction over the entire body by constant rubbing is practiced for ten or fifteen minutes. The bath completed, the water is siphoned into tubs or buckets on the floor. Any excess is sponged up, the edges of the sheet are then unfastened and dropped inside the frame, which is lifted, folded and set away. The sheet may be slipped from under the patient or remain at will, with fresh linen over it, for the next bath.

The many advantages derived from this simple and comparatively inexpensive tub are so evident as to require no enumeration. Spongings or ablutions, however well done, can not take the place of tubbing. They are feeble substitutes and fall short of the chief effects of the full bath, viz.: the greater reflex stimulation with corresponding sequelæ engendered by the contact of cold water over the entire cutaneous surface. Cold packs preclude the constant chafing and friction over the whole body which is an essential feature of the full bath to maintain tonic reaction of the cutaneous circulation. These less rigorous methods, however, may serve to educate the patient in the beginning and lead up to the more effective full bath.

If one chooses to employ the graduated bath of Ziemssen, which consists in gradually reducing the temperature from 90 degrees to 72 degrees for half an hour with gentle friction, a plan much in favor at the Tübingen University clinics, or the prolonged warm bath of Dr. L. Riess of Berlin, which consists in immersing the patient in a bath at 88 degrees whenever rectal temperature reaches 102 degrees and continued through the day, or day and night if necessary, till temperature in rectum registers 100 degrees, then the comforts and utility of the tub here presented are still more manifest.

The day is at hand when the therapeutic resources of water no longer dictated by empiricism, but placed on a firm and rational basis should be mastered by every conscientious practitioner of the healing art. Until specific medications have become established, we must yield to the claims of one of its early apostles: "Febrifugum Magnum, or Common Water, the Best Cure for all Fevers." (Dr. Hancock, Lothbury, Eng., 1723).

DISCUSSION.

DR. DAVIS—I have been for a number of years a very hearty advocate for the use of the cold bath in typhoid fever. I do not believe, however, that it in any degree shortens the course of typhoid fever, but it does make the fever very much less dangerous, and contributes to the patient's comfort. It seems probable that the typhoid state, so-called, is the result of perverted metabolism. It therefore appears likely from the results that we get clinically by the use of cold baths that by their employment we are treating more the typhoid state than we are the typhoid infection. Hence we get a decided change in the appearance of our patients by the use of the cold bath. They lose the mental dullness, particularly if the bathing is begun very early, and we find our patients remaining cool-headed, with tongue and mouth moist; and there is an excretion of a moderate quantity of urine of a fair specific gravity. In regard to this apparatus, it is extremely convenient, without any question whatever, and deserves a very general and large use. For more than a dozen years I have constantly employed a rubber sheet, used as in this instance, placed under the patient lying in bed, and drawn well up over the pillow, and then water is applied with large sponges, so that a quantity accumulates around the patient. Dr. Burr's apparatus, however, makes it possible to give the full bath with just as little inconvenience as the method I have described.

DR. BORDER of Pittsburg, Pa.—In one of the principal hospitals in Pittsburg we have made use of the cold bath treatment, and clinical reports are very favorable. However, there is a fact in the use of water that has not been touched on prominently, and that is the increased secretion of the skin, the most important of the three great excretory organs, the bowels, kidneys and skin. The bowels may be constipated for three, four or five weeks. I have known myself of a young woman who did not have a movement of her bowels for over three weeks, without any difficulty other than a slight tendency to drowsiness during the day. We are all aware that the entire suppression of the urine will result in death, in the majority of instances, in less than twenty-four hours. I think we are also all aware that the entire suppression of the functions of the skin causes death in the majority of cases within three hours. I think, then, in the use of the cold bath we lose sight of the importance of this, the most important of the three excretory channels.

DR. WEBSTER—May I ask the speaker what evidence there is to support his statement that if the secretion of the skin is suppressed for three hours death ensues?

DR. BORDER—I am not certain that I can recite precisely the experiments that these conclusions are based upon. I think the statement came from Rome, Italy, many years ago, where several small boys, I think 4 or 5 years of age, were covered with gold leaf, and placed in a procession to go around the city for one or two hours. Before the gold leaf could be removed from one apparently healthy child he had died.

DR. STOCKTON—The important matter seems to be the therapeutic use of cold baths in the treatment of fevers, as compared with other methods of treatment. Two years ago, in the meeting of this Section in Milwaukee, this matter of the treatment of typhoid fever by cold water was before the Section, and I for one greatly regretted to see how many men of prominence throughout this country opposed the treatment; 1, because it was inconvenient; 2, because it was unnecessary; and 3, because it was dangerous to their patients. It seems to me that it has been shown to-day that it is unobjectionable, and I think the experience of two years has confirmed the views of those of us who stood for cold bathing.

DR. SUMMERS, N. Y.—I desire to thank Dr. Burr for his ingenious contrivance, which I shall try to avail myself of, and also wish to express the desire that others will speak for the cold bath, so that it may be used in small communities as well as in large hospitals. At that meeting in Milwaukee, you will remember that Dr. Christian Sihler, of Cleveland, spoke of his experience in the use of the cold bath treatment in the houses of the poor in the city.

DR. S. SOLIS-COHEN—I rise to congratulate the reader of the paper upon having made more possible the use of cold water in private houses, in small towns, as was just said. My first experience with the use of water in typhoid fever began when as a student I went through the wards of the German Hospital of Philadelphia, in which the cold bath treatment of typhoid fever was carried out, though not with the rigor of the Brandt method; it was only applied in suitable cases, when thought to be necessary, and not with the thorough system laid down by Brandt. The experiences there gained convinced me thoroughly of the utility of the treatment, and ever since I have been practicing medicine I have used cold water in the treatment of typhoid and other fevers with ever increasing success. Some time ago a student of the University of Pennsylvania, Mr. Boston, devised an apparatus upon the same principle as that shown here to-day, which I tried to employ in two cases. It was not as perfect in its details as this; a heavier rubber was used, because such a sheet as shown here to-day was not possible. The great objection to that, instead of the full bath, seemed to be at variance with the experience related by Dr. Davis. The gathering of a small pool of water around the patient, instead of the full plunge at once into the bath, seemed not to be advantageous, and so, although I have continued to use this device in certain cases where immersion at once into the full bath was not practical, I am fully convinced that it is not equal to it. The reduction of temperature by bathing is only an incident to the treatment; it is the effect, not merely of the abstraction of heat, but of the removal of causes of pathogenic heat production.

DR. TURCK—Not only are we indebted to Dr. Burr for the ingenious contrivance, but also for presenting to this Society the various facts elaborated that are known up to recent times of the effect on the circulation, upon the number of leucocytes, and also the effect that it has in elimination. There is another point to be emphasized, namely, the restora-

tion of the equilibrium of circulation. We are not all dealing with typhoid fever, but how frequently we are dealing with cases of passive congestion of the viscera. When we remember that a few vessels can contain all the blood of the body we can realize how readily this passive congestion can affect the metabolism of the body.

Dr. Pettijohn—While I commend heartily the explanation of the use of this apparatus, it seems to me a little mixed in the effects that we produce therefrom. If we want to produce lower temperature, the cool water must be continually applied, and the effect produced is not from the cold application, but from the evaporation of the water on the body. So if you pour water on one part and then on another, you heat it unequally, and therefore I maintain that the general sponge bath, or keeping the surface of the body wet for a length of time is very efficacious in cooling the surface. Provided you have congestion of the internal organs, and desire to establish an equilibrium on the surface of the body, the application of cold, like a plunge bath, will at first contract the vasomotor system of the skin, and then the patient will react and the skin become red. So you must produce not only evaporation but an even temperature of cold. If our patients have not a bath tub in their houses, we can do a vast deal toward handling the surface of the body, and the establishment of the surface circulation, by simple continuous sponging. If you want to produce evaporation, put a thin cloth over the body, and sprinkle water over it.

Dr. Rochester—I think the last speaker is forgetting what the water is for; it is not simply for reducing the temperature, as was carefully stated by Dr. Burr in his paper. We want to know the tonic effect of the cold bath on the nervous system of the patient; that is the chief effect, and that is the point we should bear in mind. Moreover, as far as the excretions of the skin are concerned, some of the speakers seemed to forget the matter of friction, which is most important. It is not simply the reduction of temperature, but the effect upon the nervous system, and the friction plays a prominent part in this.

Dr. James Tyson, of Philadelphia—I want to say that from quite a large experience I feel with others here that every effort should be made by those who have experience to impress upon those to whom it is a somewhat inconvenient measure that under all circumstances, cold bathing should be used in the treatment of fever. The fact that it does give a good deal of inconvenience, and is a severe task upon the attendants and assistants. I think is very decidedly obviated by this apparatus. The use of the bath in the treatment of typhoid fever we do not exactly understand, nor do we understand its exact rationale. It is very interesting to hear from Dr. Burr as to the various explanations of the way in which it may operate. The fact is, however, that although we are all ready to admit that it is not the temperature that we particularly desire to combat, still there is something which goes with the high temperature—whatever it is—and the high temperature is the index, and with its reduction goes the danger from this particular source. I think it is desirable that we should not lose sight of the fact that it is not an invariable cure. I have myself lost cases, particularly those which terminated in perforation and in hemorrhage, which seemed not to have been reached in my experience. I think Brandt says of the treatment, that even in ulceration and hemorrhage, danger is averted if the treatment is begun sufficiently early. This is a fact of importance, which coöperates with what Dr. Burr has said as to using it, even where the diagnosis is uncertain. Therefore, I think if there is any truth in what Brandt says, that we ought not to wait for diagnosis before this treatment is made use of. As to the effects of sponging as contrasted with the cold bath, there is no doubt that the gentleman who last spoke is exactly right in what he says of the effect of evaporation in the cooling of the body, and that in sponging properly to secure this we get the best effects. I have so often contrasted the effects of sponging carried out in the most careful and scientific manner, and the difference between that and the cold bath is so utterly trifling that even nurses say that it is like wasting one's time to administer the sponge bath when the plunge bath is available. If the plunge bath is not available, we should have recourse to sponging.

Dr. Hollister—I would like to inquire of Dr. Tyson his experience or his judgment of the use of the bath in scarlet fever.

Dr. Tyson—I have no experience.

Dr. J. M. Anders, Philadelphia—An article such as we have just listened to is certainly most refreshing, because while rational criticism, which is always allowable, has dominated the clinician in the treatment of typhoid fever in the past, we have to-day an effort made to furnish expermental data to show how the cold bath treatment should be used and how it does good. It is an evidence of the fact that the scientific element of the profession have formed a procession, which is moving steadily in the direction of the treatment of the cause rather than the effect of pathologic processes—an evidence of great progress. It occurs to me that a paper on the subject of the treatment of typhoid by cold baths must be incomplete without reference to contra-indications. I do not wish to make any unfavorable criticism upon the paper, as it is impossible to bring out all the points in a single article upon the subject. To my mind, it is highly important, once hemorrhage has occurred, that the Brandt method should be omitted for a time. After hemorrhage has taken place, the danger of its recurrence is made much greater by removal of the patient to the bath.

Dr. Sykes, of Ohio—I have listened to the paper with a great deal of interest, and have no doubt that the method carried out is a good one. Physicians who are practicing in small communities, however, can not always get one of these tubs in time, but there is no town where you can not obtain some of the common oil cloth that is used for covering tables. This might be procured and the patient placed on a low, old-fashioned bedstead, and the oil cloth used as a quite effective substitute for Dr. Burr's apparatus.

Dr. Hoff, of Ohio—I have treated typhoid fever very successfully, using shower baths and sponging all over the body, also, when necessary, flushing the bowel with cold water injections. I am rather surprised to think that cold water has not been so generally used, because I used it for almost my first case of typhoid fever, some forty years since, and I can recommend it to the profession. It is an old treatment, and a rational one, and something everybody should employ in typhoid fever.

Dr. Burr—It is a matter of gratification to me to see the interest taken in the discussion of this paper. It will be impossible to note in detail the comments made for and against this method of treatment. I will refer principally to two or three points. Dr. Davis is right in his opinion about the shortening of the term of typhoid fever. Brandt did not make such a claim for the treatment. The great claim is that it does *modify* the fever in various ways. The systematic carrying out of baths in typhoid fever, begun at an early date changes the whole clinical aspect of the case. Some have claimed that this treatment increases liability to hemorrhage. Liebermeister, who has had experience enough to give him some authority, distinctly controverts that. Out of 861 cases without cold bathing there was 8.4 per cent. of hemorrhages of the intestines; out of 882 with the cold baths the number of hemorrhages was 6.2 per cent.; a difference of 2.2 per cent. in favor of the cold baths. One gentleman does not seem to understand that the reaction is kept up during the whole fifteen minutes by successively emptying and filling the cutaneous blood vessels by gentle friction over the whole body. There would be a great risk in putting the patient in that tub of cold water without friction. Drs. Stockton and Summers referred to a paper read in Milwaukee. I want to say that the paper of Dr. Sihler, of Cleveland, in which he showed that this method was practicable in the poorest of practice, was what inspired me to get up something more convenient to be carried about and used than the ordinary tube. Another thing: with regard to the urine, the patients will frequently urinate in the bath, and keep up an increase in quantity. This treatment is one of the greatest stimulants to the action of the kidneys that can be given.

---

## IRREGULAR OR ATYPICAL GOUT—HOW SHALL WE KNOW IT?

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY JAMES TYSON, M.D.

PHILADELPHIA, PA.

It has always seemed to me that if the department of medicine as contrasted with surgery is to make advances, it must be by the application of accurate methods. This is equally true of nomenclature as of clinical investigation. In no subject in medicine has there been greater looseness in the application of

terms than in that of gout, and in some recent studies of this interesting subject I have been so impressed with this fact that it occurred to me it might be worth while to attempt to formulate, briefly, criteria by which to judge of the presence of gout in its more irregular forms, with regard to which alone as contrasted with regular or typical gout the confusion really exists.

While many theories have been advanced and many experiments performed with a view to explaining the method of its accumulation, all pathologists agree that the fundamental condition of gout is an excess of uric acid in the blood. The shape in which uric acid exists normally in the blood has commonly been considered to be that of an acid salt, the biurate chiefly of sodium, also the chief constituent of gouty tophi. Recently, Sir Wm. Roberts has attempted to show with apparent success that it is the quadriurate, a salt shown by Bence Jones many years ago to be the principal constituent of the so-called amorphous urate sediment. In this compound, four equivalents of acid are combined with one of soda. It is nearly agreed to, that the local symptoms of gout are the result of an irritation produced by local deposits of the acid salt in the affected tissue. Under certain abnormal conditions the normal quadriurate splits up into biurate and uric acid; the latter being eliminated by the kidneys, while the former remains in the blood until deposited; or the quadriurate may be transformed in the blood into biurate which may be deposited in different parts of the body. But, while uric acid deposits in the joints and elsewhere are commonly the cause of attacks of pain, this is not always the case. Tophaceous deposits are by no means always painful. Hence some, and notably, Pfeifer who has lately done much experimental work bearing on the subject believes it is the uric acid in solution and not when deposited which causes the attack of gout.

In true or typical gout we have a definite morbid state, the tendency to which is commonly inherited, but which may also be acquired, and corresponding to this set of definite symptoms. These may also manifest themselves in an irregular manner and degree, constituting the irregular forms of gout. Among these, however, are constantly being included complexes of symptoms which are erroneously ascribed to gout, and it is with a view to point out and discourage such erroneous association that I have written the present paper.

It is more particularly irregular gout, under which are included certain ailments not legitimately ascribable to it. This is not surprising when it is remembered that there is scarcely a form of visceral or external pain, functional or organic derangement which has not been by some one or other declared to be gouty in origin—often, indeed, with reason and propriety. It becomes, therefore, extremely important that we should elect some data on which to base a decision, and the more so since gout is growing in frequency in this country.

First as to irregular gout whose existence has been acknowledged by all authorities on gout from the time of Sydenham down to the present day. What is it? A leading authority of the present day, perhaps *the* leading authority, Sir Dyce Duckworth says: "Gout manifesting itself anywhere but in a joint is to be considered irregular or incomplete." He says further: "Such phases of the disease may be anomalous, but they are very common, and as such are so far regular as to comprehend a number of ailments which pertain chiefly and in some cases exclusively to persons of gouty heritage and diathesis." Also: "Without doubt many morbid states have often been flippantly or erroneously set down to irregular gout which own no such designation, and thus a cloak for ignorance has always been at hand to throw over careless observation, ignorance or willful misinterpretation of symptoms." Both sentences last quoted sound very well, but when we attempt to look up the number of ailments "which pertain chiefly and in some cases exclusively to persons of gouty heritage and diathesis" they are hard to find, especially when we are informed by the same authority that the absence of tophaceous deposits, or of the history of an attack in a big toe, or of heredity, or of personal history, calculated to promote gout, does not necessarily exclude the ailments from the category of gout. And further "that it is just in cases where no marked coarse objective signs of gout exist that we should look for the presence of the minor tokens of the affection, and just in such cases that we commonly find them." These statements are so contradictory that it is plain that nothing can be deduced from them. I propose briefly to point out certain conditions under which ailments may be legitimately regarded as gouty, and though ailments truly gouty may sometimes be excluded by reason of absence of such conditions these must be very few. It is to be remembered that we are speaking of irregular gout, for regular gout is easily recognized by definite symptoms which it is not my purpose to allude to.

It is in place, however, to name some of these ailments. They include first in the words of another acknowledged modern authority on gout, Sir Prescott Hewitt: "Dyspepsia, more or less troublesome; frequent deposits of lithates; slight eczematous eruptions from time to time; anomalous pains in various muscles; sharp deep-seated pain in the tongue, existing for two or three days and then disappearing altogether for a while; crackling about the cervical spine on slight movements, more or less; sometimes a mere suspicion of knottiness about the smaller joints of the fingers." The muscular pains may be anywhere and "flying" in nature, but the muscles of the back of the neck, the lumbar muscles, the adductors of the thigh and gastrocnemii are especially liable. The pains are apt to come on in the night and are bad in the morning on awaking, but improve as the day advances. In addition may be mentioned articular pain, nodosities and deformities about the finger joints of other than tophaceous composition. From these are to be excluded, except in very rare instances, Heberden's nodosities which are not usually of gouty origin but belong to rheumatoid arthritis which is distinctly not a form of gout—although unfortunately also called rheumatic gout. Among them are, however, certain vesicular eminences on top of Heberden's nodosities described by Paget and Garrod.

In the same category are included headache of every variety including migraine; tingling and pain in the palms of the hands and soles of the feet and heels, and tendo-Achillis; also follicular inflammation especially about the end of the nose, sclerotitis, corneitis and conjunctivitis with white spots (tophaceous) in the cornea and eyelids. Asthma, bronchitis, tonsillitis and pharyngitis, dryness of the mouth and tongue are considered the result of gout. Then there

are the various skin affections, also gastric pain, flatulent colic, urethritis, orchitis, prostatitis and cystitis with hemorrhage into the bladder in men, and ovaritis, metritis, dysmenorrhea in women, as well as meningitis, neuritis, endarteritis and the whole category of affections known as visceral and retrocedent or metastatic gout, including gout of the stomach and heart and cerebral gout or *apoplexia arthritica*. Various psychopathia including irritability of temper and capriciousness, especially melancholia with suicidal tendency, insomnia—all of these are at times of gouty origin. In fact, as already stated, there is scarcely a single ailment which has not been ascribed to gout. I will only allude further in this place to one of these symptoms of undoubted gouty origin the nature of which is often overlooked and that is hemorrhage into the bladder. I have known a medical man given up by his attendants as hopelessly ill from malignant disease of the bladder, which was filled with blood, simply the result of gouty hemorrhage, as proved by autopsy several years later.

In view of these facts, does it not seem necessary to establish some criteria whence we may judge whether the ailments mentioned which so evidently arise from many causes, are due to gout or not? Casting about for such, it has seemed to me that the following conditions may at least serve as a guide to aid one in determining the etiologic relations inquired after:

It is plain, first of all, that if uricacidemia can be demonstrated to be present it may be regarded as strong presumptive evidence that any one of these events is gouty. Unfortunately it is rarely possible to test this fundamental condition of gout, because of the want of the special skill and apparatus necessary for the purpose. For it is to be remembered that uric acid deposits in the urine are no criterion of the quantity of uric acid in the blood. This can only be determined by blood analysis.

2. The supervention of an attack of regular gout simultaneously with subsidence of some one of the ailments named, or an alternation of any one of these with regular gout. This is one of the most valuable criteria, which may be regarded as almost conclusive, let the ailment be almost what it may. One need not go far to find many remarkable instances.

3. The history of previous attacks of regular gout. This must be taken in connection with the absence or presence of other causes capable of producing the same ailment.

4. The presence of traceable hereditary tendency to gout. This has a value similar to the preceding, and must be similarly considered.

5. The history of exposure to lead poisoning or other symptoms of plumbism. The association of plumbism with gout or saturnine gout as it is called, is one of the most interesting features in the history of gout. It is undoubted although the frequency varies greatly in different countries. Thus in France, Germany, Ireland and Scotland it is rare, while in England, especially in London, it is common.

6. The history of a habit or mode of life which furnishes the conditions of acquired gout.

7. The constant presence of a high-colored scanty urine of high specific gravity with a tendency to lateritious sediments and uric acid gravel. It does not often happen that gout and gravel coexist. More frequently they alternate, the passage of gravel ceasing with the appearance of gout, and *vice versa*, and the supervention of any of the ailments named on an attack of uric acid gravel makes it seems reasonable that such ailment may be of gouty nature.

Now it is well known that these phenomena of lateritious sediments and scanty urine are a part of the lithemic state, and the question of the relation of gout to lithemia suggests itself at this point. It is also well known that in addition to the characteristics of the urine just mentioned there is a commonness of other symptoms. The headache, migraine, depression of spirits, shooting pains, cramps, palpitation and vertigo which characterize gout are a part of the symptomatology of lithemia. Nay, more; the same causes which lead to one lead to the other. Free living in the broadest sense of the term, including the luxury of habit which is associated with the possession of wealth, is the cause of both, but while a similar train of symptoms exists in both the resemblance stops at the joint affection. In lithemia there are no tophaceous deposits. If there are, the lithemia has become gout, an event which sometimes comes to pass. Why is it then that one man acquires lithemia and another gout under the same mode of living? The answer, it seems to me, must be that the lithemic person is not really gouty; that is, does not possess the inherent tendency which favors the development of gout. It is well known that lithemia is a common disease among Americans while the English of all people are most subject to gout. The American, as a rule, is not yet gouty. On the other hand, the American is rapidly becoming gouty. I find the number of gouty cases in my own practice increasing, and they include the grand-children and children of those who have not been gouty, but who were poor and had to work hard. I also find among them the children of families where there has been gout, but where it has been kept in abeyance for a generation or more by the same causes.

8. The presence of glycosuria in association with gout, or in alternation with it, or in certain members of gouty families is an undoubted fact, and establishes a very close relation between these two conditions. I have nothing to do here with the question as to whether such glycosuria should be called true diabetes mellitus or not. It may be mentioned, however, in passing that the cardinal symptoms of diabetes, thirst and polyuria are often wanting and that such cases of glycosuria are the easiest of all to control. Such glycosuria may alternate with uric acid sediments or may be associated with them, and its presence should always suggest a suspicion of gouty nature to a concurrent or alternating ailment.

To a much less degree the presence of chronic interstitial nephritis, which I believe is always sooner or later the fate of the victim of gout, should also receive consideration.

10. Finally, here as in so many other cases, therapeutics comes into play as a factor in determining the nature of an ailment. Should such be relieved by the typical treatment for a gouty paroxysm, its gouty nature may be regarded as established.

Thus it will be seen that there are a number of data which may help us to a correct diagnosis, and that random guesses are not necessary in the majority of cases. It is true that a conclusion can not always be arrived at with promptness, and a careful and even prolonged study may be necessary before such conclusion is justified, but I hold that in the

vast majority of instances it can be made, and that there is no excuse for the carelessness so often practiced.

DISCUSSION.

DR. ANDERS—I can not forbear saying a few words on an interesting paper like Dr. Tyson's. What I wish particularly to call attention to is the fact that Dr. Tyson has distinguished clearly between what has been called since Richardson's time, latent gout or lithemia. I am particularly pleased to hear that differentiation made, and I do not think it can be made too often. I would go a little further, and say that I do not think that lithemia necessarily leads to gout at all. That we have the uric acid state in lithemia is undoubted, and that we have the symptoms that closely resemble gout is undoubted, but that there is any distinct relation between the two in the matter of tendency I have great doubt. The diagnosis can, I believe, be made from lithemia without much difficulty.

DR. HERRICK, of Cleveland—I have enjoyed the paper very much. Barber has published a work in which he indulges in very nearly the same view. I also rise to the point of the terminology of the disease. It should not be regarded as atypical. Gout is a term not expressive of any particular phase of trouble. What we desire to express is the departure from the normal, and also looking to its source. The author to whom I refer speaks of its source as the digestive tract. I think we will all agree in the opinion that the disease is one referable to disturbance of the digestive tract, or to excesses of food, or general hygienic conditions of that character; deficiency of exercise, with much indulgence in nitrogenous food and alcoholics. It seems to me that we have large hopes in the line of investigation of this class of difficulties, because as the paper says, there are multiple evidences affecting different parts of the body.

DR. ANDERS—I rise to obtain information from Dr. Tyson, It was mentioned by him that one of the main factors for diagnosis was the history of heredity, and in that I fully concur. I have also observed that gout is markedly hereditary in the families of the poor as well as in those in the opposite condition of life. My observation teaches that it is much more hereditary through the female than the male, and in this I am not alone. I should like to hear an opinion on this point from one who has seen so much of gout as Dr. Tyson.

DR. TYSON—In answer to Dr. Anders, I may say that while I am aware of what he says, and agree with the authorities in regard to the heredity of gout through the female, I can not in my whole experience add anything to the knowledge on the subject. As to the kinship between rheumatism and gout, I tried to avoid that question, except from this standpoint: one of the facts that we have most frequently to contend with is that rheumatism is called gout a great deal more frequently than it should be. My idea in forming criteria was partly in order to know whether certain cases are rheumatism or gout. The symptoms of acute gout and the symptoms of rheumatism are widely different. In chronic gout we have a lack of similarity in certain symptoms, and I feel that enough care is not exercised by physicians in this particular.

THE CHAIR—I should like to ask whether there are not certain cases in which it is impossible to make the distinction between rheumatism and gout?

DR. TYSON—There are cases in which it is extremely difficult if not impossible to decide. The only point is that we may decide with care more frequently than we ordinarily do.

DR. ANDERS—I should like to ask Dr. Tyson whether he considers rheumatism an infectious disease?

DR. TYSON—Yes, I regard acute articular rheumatism as infectious.

---

## THE CONDITION OF THE TWO VENTRICLES WITH REFERENCE TO THE ADMINISTRATION OF DIGITALIS.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY ROBERT H. BABCOCK, A.M., M.D.

PROFESSOR OF CLINICAL MEDICINE AND DISEASES OF THE CHEST, COLLEGE OF PHYSICIANS AND SURGEONS, CHICAGO, ILL.; ATTENDING PHYSICIAN COOK COUNTY HOSPITAL.

CHICAGO.

The commonly accepted indication for the administration of digitalis is cardiac weakness in its broadest sense. More precisely drawn this indication is furnished by weak, rapid, perhaps irregular action of the heart, low pulse tension, a mitral murmur indicating regurgitation or stenosis, dilatation of the right ventricle with or without leakage of tricuspid valves, and dropsy. Cardiac dilatation without valvular disease is also considered to indicate digitalis. Whatever differences may exist in the cardiac conditions, there is always present relative arterial anemia with venous hyperemia. Yet that something else beside mere cardiac weakness exists upon which may depend the usefulness or injury of digitalis is illustrated by the following case:

*Case 1.*—Oct. 29, 1894, A. D., male, age 12, was seen in consultation. It was a typical case of mitral insufficiency with lost compensation. Hyperdicrotism of the pulse as shown by the sphygmograph, great dilatation of all the cardiac chambers, particularly of the right ventricle, mitral systolic murmur and the classical signs of tricuspid leakage, with greatly enlarged and pulsating liver, ascites and considerable edema of the lower extremities, great pulmonary congestion and moderate hydrothorax in the right pleural cavity. Two examinations of the urine subsequently revealed a few granular casts, 1 per cent. of urea and slight albumin. Diuretin-Knoll and a brisk purge removed anasarca and greatly lessened the ascites within the next two or three days. The hyperdicrotism and the manifold signs of pulmonary and venous congestion seemed to plainly indicate cardiac tonics. Convallamarin one twenty-fifth of a grain, t.i.d., was ordered. No improvement resulting after two days, the condition on the contrary seeming rather worse, a fresh infusion of digitalis (U.S.P.) was made from English leaves by one of the most reliable druggists of Chicago. Of this infusion 1 drachm was given every six hours for three or four days. The pulse grew progressively smaller and more hyperdicrotic if that were possible, while the cardiac impulse became more diffused and feeble but not irregular. Strophanthin one hundredth of a grain was then ordered and given for about twenty-four hours. Then came one evening two alarming sinking spells which necessitated the free use of stimulants. At this time the enormously dilated right ventricle, could be felt, feebly pulsating in the intercostal spaces to the right of the sternum, and the sounds at this point took on the rhythm of the *bruit de galop*. The urine had progressively diminished to about eighteen ounces in the twenty-four hours. The ,patient's condition was truly alarming and we realized the necessity of resorting to urgent measures. Strophanthin and digitalis had not only proved useless but apparently injurious; accordingly nitrate of strychnia, one-fiftieth of a grain was ordered, subcutaneously every four hours, alternating with one minim of a 1 per cent. solution of nitro-glycerin every four hours and 2 drachms of whisky three times a day. A hydragogue cathartic was also administered. The next day to our astonishment the pulse had fallen from 122 to 92 and was perceptibly fuller and less hyperdicrotic. The galop rhythm over the right ventricle had disappeared as well as the pulsation in the jugulars. Improvement was steady and ten days or two weeks subsequently, 1 drachm of digitalis infusion, together with moderate doses of diuretin-Knoll, t.i.d., was well borne and caused removal of the ascites and edema, the urine increasing to one hundred and twelve ounces per diem. The subsequent history of this case does not call for recital here.

Here was a case in which all conditions laid down by Bartholow for the administration of foxglove were present, and yet it was manifest that had the digitalis been pushed the patient would have succumbed. It can hardly be urged in explanation that the infusion was inert since it was made out of English leaves. To what then was the failure of this drug to be attributed? Before attempting to answer this query permit the brief recital of a second case:

*Case 2.*—Dr. E., male, something over 50 years of age, physician, was seen in consultation last January. The chief complaint was of frequent and harassing dry cough, with dyspnea and rapid feeble pulse on slight exertion. To make a long story short, suffice it to say, there were found moderate dilatation of the left ventricle; first sound being feeble, sec-

ond pulmonary sound greatly accented, recent pleuritic adhesions at the base of the left lung, moderate congestion of liver and kidneys, no râles or distinct physical signs of hypostatic congestion of the lungs. Peripheral arteries showed slight thickening; urinalysis by Dr. C. W. Purdy had revealed the existence of chronic insterstitial nephritis of moderate severity. The harassing cough and dyspnea were attributed to weakness and dilatation of the left ventricle with consequent pulmonary congestion. This case seemed preëminently one indicating digitalis. A fresh carefully prepared infusion was ordered therefore and taken in 3 drachm doses, t.i.d. The urine increased in amount, pulmonary congestion diminished and the cough was entirely relieved.

Here, then, was a case in which the drug displayed its happiest effects. Wherein did the difference in these two cases exist, so far as referred to the administration of digitalis?

If one will search authorities, both in materia medica and therapeutics, as well as in clinical medicine it will be noticed that, with but very few exceptions, no reference is made to the action of digitalis on the right and left ventricle respectively. It seems to be taken for granted that its action on these two chambers is the same. That this may not be the case was first suggested to me by some statements made by Openchowski in his discussion of Leyden's paper, "*Ueber die Prognose der Herzkrankheiten*."[1] This led me to search out Openchowski's original communication,[2] wherein is published the account of his experiments with digitalis. As a preliminary work, he first investigated the effect of vasomotor dilators, as amyl-nitrite, on the pulmonary vessels and determined that they were wholly without influence on this system. Tension within the pulmonary artery became increased secondarily as a result of lowering of the blood pressure within the aortic system. By means of the kymograph he found that small doses of helleborin failed to increase blood pressure within the pulmonary artery or right ventricle. In fact, the pressure fell somewhat at the beginning of the experiment. He observed furthermore that if injections of helleborin and digitalis were given and the living heart then excised and immersed in a weak salt solution, the left ventricle continued to beat long after the right had ceased, the reverse of what happens in hearts not poisoned with these agents. Moreover, in animals killed by these poisons the left ventricle was found post-mortem firmly contracted, while the right was relaxed. Upon exposure of the heart in the living animal, previously poisoned by digitalis, the left ventricle was seen to beat more slowly and three or four times as long as the right. The left coronary artery was distended with blood and small ecchymoses were found in the myocardium of the left ventricle; whereas the right coronaries not only were not distended but seemed somewhat smaller in volume, and no ecchymoses were ever discovered in the area of distribution of this vessel. He explained the production of these ecchymoses by the pressure brought to bear on the turgid vessels by the strongly contracted myocardium. The reaction of the coronary arteries to digitalis was similar to the effect observed by Lukianoff, of ligation of these vessels. Constriction of the right was followed by turgescence of the left, whereas dilatation of the right did not follow ligature of the left.

Openchowski concludes, therefore, that the coronary arteries possess an eliminating or regulating influence over the action of digitalis on the right ventricle. He thinks this conclusion borne out by clinical experience; that is, by the observation, that in case of disease of the right coronary artery, the effect of digitalis on the right ventricle is injurious. He cites in support of this statement a case of mitral stenosis in his own ward in which dyspnea and death followed a few small doses of digitalis and in which the right coronary was found atheromatous after death. In referring to his experiments and conclusions in the discussion of Leyden's paper above cited, he mentions also that A. Fraenkel has published three cases of mitral stenosis, in which the administration of digitalis was promptly followed by dyspnea and cardiac failure. I regret to say I have been unable to get access to this paper of Fraenkel. I have, however, carefully perused an address by Leyden,[3] to which Openchowski alludes, and find he says essentially as follows: "The beneficial effect of digitalis in cases of mitral disease would seem to point to its chief action being on the right ventricle, but as other experience seems to warrant an opposite conclusion, this matter will have to be left undecided. Although this remedy may be indicated and often beneficial in hypertrophy and dilatation of the right ventricle in mitral disease, it is often useless when this condition of the ventricle depends upon chronic bronchitis and emphysema or kypho-scoliosis with dyspnea and dropsy. So that, as Leyden says, the right ventricle seems to acquire but little energy from digitalis on account perhaps of the small volume of its myocardium."

In this connection may be cited the experiments of M. Heger reported in *Bulletin de l'Academie Royale de Medecine de Belgique*, and of which a resumé may be found in the *American Journal of Medical Sciences* and the *Therapeutic Gazette*, 1892. This experimenter concluded that the action of digitalis was exerted chiefly on the left ventricle and aortic system; that its effect upon the right ventricle was similar but much less powerful; that it exerted no direct influence upon the pulmonary vessels, but it was capable of relieving stasis within the pulmonic system through its action on the left ventricle. He likened this action therefore to a veritable bleeding from the lung. It will thus be seen that although Heger considers digitalis to exert more influence upon the right ventricle than does Openchowski, he agrees with the latter in finding no direct action upon the pulmonic system and the effect on the right ventricle subordinate to that on the left.

Whether or not Openchowski has proved experimentally all he claims concerning the action of foxglove, there seems to be clinical evidence sufficient in the opinion of such men as Leyden and Fraenkel to render doubtful its utility in all cases of dilatation of the right heart. To return now to the case of the lad described above. All the recognized indications for digitalis were present and yet it was manifest at the time that this and kindred remedies did harm. It is not easy to explain why this was so. Disease of the right coronary artery with consequent inability to regulate the drug's action on the myocardium, was not likely in a boy of 12 years. There was enlargement of the left ventricle and, so far as I could determine, this enlargement was due to hypertrophy rather than dilatation although this latter condition

[1] Deutsche Med. Wochenschr. 189.

[2] Das verhalten des kleinen kreislaufes gegenueber einigen pharmakologischen. Agentien besonders gegen die digitalis gruppe. Th von Openchowski zeitschrift fur klin. Med. Berlin, 1889, XVI, p. 201.

[3] Uber die Wirkungsweise und die indicatioen der digitalis. E. Leyden, Deutsche Med. Wochenschr., Berlin 1881, VII, 345, 358.

undoubtedly existed. There was an evident disproportion between the strength of the two ventricles in favor of the left, the right being in a state of extreme dilatation. Moreover there was free regurgitation through the incompetent mitral valves. When digitalis was administered its effect, if we may trust the results of experiments, fell chiefly on the stronger of the two chambers. Its contractions were strengthened as could be determined by the pounding impulse against the chest wall, while their rate was but slightly diminished.

The failure of the drug might be theoretically explained as follows: instead of discharging a larger volume of blood into the aortic system, as should have been done, the ventricle may have emptied the larger part of its contents through the wide open mitral orifice; therefore, instead of aspirating the blood out of the over-loaded pulmonic system, the ventricle threw back again the increased volume which had accumulated within it during its somewhat lengthened diastole. The dilated and feeble left auricle could not withstand the shock which consequently must have fallen upon the right ventricle. Distension of this latter was promoted rather than decreased.

However the failure of digitalis in this case may be explained, its effect plainly corroborates the position taken by M. Huchard, who declares that excessive dilatation of the heart furnishes a contra-indication to the administration of digitalis. He advises first the withdrawal by venesection of from eight to ten ounces of blood, which will remove the over-distension of the organ.

In my case a purge was administered in addition to nitro-glycerin and strychnin. The result was the accomplishment of just what had failed to be done by the digitalis.

In the second case described above, the left ventricle was the chief seat of weakness but the mitral valves were competent. Here the drug lengthened diastole, thus permitting a better filling of the ventricle and energized its contractions. Blood was aspirated, as it were, out of the lungs into and through the left ventricle into the aortic system. Hence the action of digitalis was displayed in its perfection. Could anything be more striking than the difference in these two cases?

Whether or not the *modus operandi* in the first case has been properly explained, that is, whether or not the failure of the digitalis can be ascribed to any of the reasons laid down by Openchowski and Heger, or to the theoretical explanation I have given, the case furnishes clinical evidence that digitalis may fail to favorably affect the right ventricle in cases in which it most urgently demands a tonic. To my mind it furnishes a strong degree of clinical proof that the administration of this drug and its congeners depends for its indications upon the relative condition of the two ventricles. It is not assumed for a moment that these two cases settle this question; it is only hoped that the recital of these cases and the reference to Openchowski's work may open up a line of discussion in this meeting and a path of clinical investigation which will prove of future value.

Venetian Building.

Blank Applications for membership in the ASSOCIATION at the JOURNAL office. Write for them; sent free.

## CARDIAC INSTABILITY DUE TO ACID AUTO-INTOXICATION.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY W. T. ENGLISH, A.M., M.D.

PROFESSOR PHYSICAL DIAGNOSIS IN MEDICAL DEPARTMENT OF THE WESTERN UNIVERSITY OF PENNSYLVANIA; AND CONSULTANT IN CHEST DISEASES IN THE SOUTH SIDE HOSPITAL, PITTSBURG, PA.

The study of the phenomena occurring in the human body would be attended with vague and impenetrable mystery were it not that we know something of chemic affinities and aversions. A great deal of the light that has recently illuminated the medical realm is reflected from the chemic laboratory. Chemistry and microscopy have been extending their arms of light in the attitude of a prolonged benediction over our science for at least a decade. No methods of investigation have merited and received such universal adoption. The only cases that can now be admitted to an audience with the advanced physician without contact with reagents or microscopic scrutiny are hypothetical ones. The man who is satisfied with the dictum of his unaided eyes, ears and sense of touch in physical examinations is behind the procession. These methods of inquiry introduce us into the arena of vital action, and make plain to our understanding the pathologic processes. Much that has hitherto been attributed to diathesis and temperament finds explanation through the medium of study associated with changes that are chemical and molecular. Instability in bodily life appears in harmony with the rule that the more complex the molecule the more varied the incidents associated with its activities. The somatic functions are known to be subservient to molecular caprice. The molecule being dominated by chemic affinities and aversions the demeanor of individual parts and organs is correspondingly inconstant. Invariably nature varies. This unstable demeanor of the chemic equivalents brings the pathologic line very near to the normal. So that, if to-day the citadel of life is besieged by the acid forces, to-morrow every fort may be dominated by the bases and salts. Through the infinite window of the microscope we may now observe the ærobic bacterium dignitary felicitous in his oxygen bath—and anon he will be seen wallowing in the filth and excrement of the anærobic laggard. Under one administration the aristocratic white corpuscles dance along the epithelial sidewalks of the arterioles, and under another they are displaced by their ruby democratic constituents. All this may obtain because of the change of control taking place between the acids and the alkalies.

Many facts have been observed in the recent past, by means of the acids referred to, which demonstrate clearly the presence of chemic forces in the production of otherwise unsolved mysteries, and these can not longer be ignored. Numerous insidious, but, nevertheless potent changes, continuously going on within the economy, can be accounted for only by the traffic in acidulous elements. There have been repeated and tangible evidences, in my experience, of abnormal heart phenomena that have linked them inseparably to acidulous conditions, as betrayed by lowered alkalescence of the blood, and what is equivalent thereto—hyperacidity of the other bodily fluids. Few of us have not had startling and hapless results from unsuspected heart malady

which were not accounted for by conditions present, or by any antecedent causes, so far as we could determine. After investigating in this realm a number of cases of cardiac instability, I have convinced myself that the mal-behavior and myocardial deterioration are sequelæ to a prolonged acid auto-intoxication.

It is almost universally admitted that a large excretion of acids is contemporaneous with an irritable condition of the heart and circulatory apparatus. The presence of much acidity, no matter how produced, always and persistently coexists with this state of the circulation. Theoretical and chemic testimony are corroborative, and investigations have sustained the assumption in nearly every case. After prolonged mal-behavior superinduced by acid conditions the heart shows weariness. And if theoretical and chemic proofs were wanting, this empirical evidence—that acid conditions may induce nutritive lesions in the myocardium—can not be successfully denied. Symptoms of intermittence of impulse rapidly pass from the neurosal into the organic form. If the cases continue there follow the results commonly found in similar conditions of the heart from dissimilar causes, viz., dilatation from myocardial changes and inefficiency of the valves from peripheral traction; or in other words, relative or muscular incompetency. We have not far to seek for authority to prove that acid impressions extend beyond the nerve influences and when toxic, even in a slight degree, the symptoms appear as involving the regular action and accustomed functionation of organs—especially the heart; for it is well known that all troubles which involve a waste in the residual nerve force entail marked depression that leads to disintegration. Doubtless we have all observed the influence of acid conditions brought about by dyspepsia and the coincident tumultuous behavior of the heart. We may not have attributed these symptoms to the direct irritation of the acidulous blood upon the heart, yet all have recognized the symptom.

Chemic combinations of the blood are known to play a great and important part in the action of the heart, probably in two ways: 1, by direct disturbance of the sub-endocardial ganglia; and the endocardium in close relation to these ganglia; and, 2, by irritation directly conveyed through the coronary arteries and their branches to those ganglia situated in the muscular tissue. The presence of irritating materials in the blood does not specifically limit its pernicious influence, but it prevents proper elaboration and metabolism. In addition to this, it crowds out the material most needed for cardiac nourishment, which influence has its first and most natural expression through the trophic nerves and ganglionic cells. Although in early stages this condition is curable, if long neglected it is followed by an ingravescent asthenia, from which there is no recovery.

So much is now known of the influence of acids upon the heart that we are sure they first exhilarate, then shorten the duration of the systole and subsequently render it less and less powerful until contractions cease altogether and the ventricle remains at rest in diastole. When introduced gradually, and their presence protracted, there is a gradual degree of tolerance cultivated which masks the results somewhat.

Acids influence the entire circulatory apparatus through the nerve supply. Vasomotor effects are extremely liable to betray themselves in the periphery by cold extremities and chilliness of the surface. Reduced alkalinity causes contraction of all the arterioles in the body and may induce spasm of certain areas. Contraction of these vessels is so universal, and the cold surface and extremities so constant, that high tension is to be supposed whenever the degree of acid auto-intoxication is reached. High pulse tension has been produced at will by several experimenters, by foods, medicines and drugs that were known to influence the acidity or alkalinity of the bodily fluids. When high pulse tension and confusion in the nerve supply of the heart coexist, there is a want of adaptation of the central organ to the circulation throughout, and a season of confusion follows, during which there is an increased demand upon the heart for systolic force and a lessened capacity for its achievement. In addition to the mal-behavior superinduced in the heart by the ceaseless traffic in blood of lowered alkalescence, it meets with considerable and effective opposition in the spasmodic demeanor of the pulmonary arterioles. The heart encounters its most deplorable opposition in the pulmonary apparatus. Pulse tension thus influenced in the presence of any renal disability would surely be followed by albuminuria and nephritis. If the heart is deprived of the aid of these emunctories the acid tide rises, the cardiac muscle grows weary, and dropsies, nervous accidents, headaches, dyspnea, etc., supervene.

The acids taken into the body and others which are the products of chemic changes within the body are constantly passing out of it through the lungs, skin and kidneys. Complete oxidation is essential to a perfect balance, but, from the very nature of things this can never be. The organs and tissues act as dyalizers, and, as far as they have the capacity, they set about to neutralize the superfluous acidity. If the liver is flooded with acid it may elect to store it up until a more or less remote opportunity for elimination arrives, or it may cause it to assume some other chemic state. The spleen has accorded to it similar capacities. The kidneys and skin soon divest themselves of its irritating presence. The stomach and digestive tube decompose it and pass it along to other parts, with more or less celerity; or expel it as gas, vomit or fermentative stools. But the heart is minus such function and is constantly subjected to its irritative influence without means of defense. Acidity, which is produced from neutral salts, as frequently occurs after dyalysis, may have immediate contact with the heart and circulation.

The acids which are introduced into the system in foods constitute a very tedious list. Those which are met with as natural or normal elements in the various processes of nutrition are similarly extended. When the digestive tract is converted into a fermenting apparatus other combinations are formed, and their number and variety are vastly augmented. When acids appear in the free state in the system they are found in the urine unchanged. There is a hypersecretion of hydrochloric acid that may contribute to over-acidity, and a similar result obtains in an indirect way by too small a quantity, which will permit fermentation.

Much animal food favors acidity on account of its large contribution of acid salts. Beer, ale and light wines conduce to acid conditions.

It is assumed that the liver stores up uric acid. From thence it is conveyed to the kidneys, and there is only a partial excretion and this admits of an overflow by the renal veins causing its appearance, to a small extent, in the general circulation. Thus it gains entrance to all the organs. It is shown that in cartilages and joint tissues, and also in the bony structures, acid is stored. These parts being less vascular than most portions of the body, acid deposits are not rapidly removed, even after the blood alkalescence is recovered. But the presence of nodosities and deposits of this kind, pre-supposes a condition of high acidity in itself. The line may extend, in those of exceedingly acid dispositions, beyond the uric acid mark.

Special stress is laid by some upon sarcolactic acid. This is formed by muscular exertion, and at the same time there is deposited carbonic acid.

With all these channels through which the blood may reduce its alkalinity and the body become an acid storehouse, it is not to be wondered at that there is a probability of acid auto-intoxication at any time. But if it so happen that excessive formation and defective elimination appear at the same time, the difficulties would become apparent.

Defective elimination of the acids may be due to diseased condition of the lungs, skin and kidneys, or possibly to want of physiologic stimulus to the exercise of their functions. Acid exaltation follows every temporary suppression of the emunctories, and this is accompanied by decline of blood alkalescence.

Very slight impressions made upon an individual by his environments will exert modifying influences. The temperature of surroundings deserves consideration. A hot room promotes perspiration and diminishes acidity. Conversely, cold and damp diminish excretion and raise the acid line. By this suppression of the perspiration in those of low alkalescence of the blood there will follow irregular heart action, intermittence of the pulse, increased peripheral resistance and elevated blood tension, accompanied by dimness of vision, vertigo and numbness of the extremities. These symptoms may come on insidiously but oftener are very precipitate, as in the presence of all the various means by which the acid tides in the body rise. It must of course be known that there is a constant ebb and flow with most if not all. However, there are some persons who live just upon the acid line and everything not decidedly alkalin will force them into the acid realm. There is a distinct nocturnal acid tide period. High acidity during sleep is the rule. There is a diurnal tide rise beginning about 3 P.M., and continuing until 5:30 or 6 P.M. These are free from changes incident to ingestion of foods and are, in the major part, of alkalin influence.

There is no doubt that the recurrence of these acid tides and continuous exposure to their influence imparts to the tissues an aptitude to take on inflammatory conditions, and incline toward perverseness of nutrition, from which tissue change and fragility may reasonably be expected and do arise.

In passing, it may be well to note that the period at which the most lamentable accidents in heart lesions occur, corresponds to the hours when the acid tide is at its highest, viz., during the quiet of the night. This is the season when the circulation should be reposeful, and yet it is in a great many cases, the time most prolific of cardiac anguish. This acid tide rise corresponds to sudden deaths which occur without suspicion of heart malady. It also gives a rational explanation for some others which have been regarded as inscrutable acts of Providence. Let us review briefly, a typical case of heart change due to acid auto-intoxication, in that most gradual process which would include the entire life of the individual:

We will assume that the blood at birth flows purely alkalescent. During the first twenty-four hours after birth nothing occurs to disturb this condition, even the alimentary canal is free from fermentative actions and reactions. From this time onward, numerous infinitesimal vegetations begin their perilous work in the prima via. Bacteria, ptomaines, etc., henceforth continue their merciless crusades. The tissues and fluids take on the acidulous character in consequence of the presence of acid in the body. And thus the never-ceasing cycle of acid activity is begun.

Hydrochloric, lactic, acetic, butyric, sarcolactic and other acids struggle toward the emunctory outlets. The excretions are all acid. Some extraneous influences ever and anon suppress the functions of the skin and there is a coincident acid rise. The heart makes its first misstep—it has been guilty of an intermission. Amid the acid ebb and flow, and varying stress incident thereto, the child heart must respond to the unceasing demand for development, so that at the end of two years it may have doubled its bulk, and at each quinquennial thereafter redouble it until it has arrived at the period of bodily maturity. Meanwhile new features and strange processes are inaugurated, including those important changes incident to puberty and adolescence. Together with an over-consciousness of a generous nerve supply is vouchsafed a vasomotor and circulatory system rendered specially sensitive because of the constancy of the lowered alkalescence of the blood traversing it For a time the circulation is spurred onward and the vital activities are pushed to their zenith point. In such a subject, plethora is extremely liable to come on early. The subject finds himself a slave to his cravings for foods and drinks with scarcely enough will to resist the simplest demands. In consequence he is prone to supply material for oxidation so freely, by over-feeding, that the contribution of oxygen is inefficient to secure complete combustion. Because acid elimination occurs at every point, there is a constant desire for fluids and foods to replace the acid output. Acids are freely ingested, and acid foods preferred. The emunctories are overworked and lag in their energies. About this time in the progress of acid auto-intoxication the subject's feelings trace for him a diurnal curve in his bodily acidity, and the heart is very commonly in a tumult.

The constant and protracted irritation of the intrinsic cardiac nerve supply and the vasomotor excitement produce general mal behavior of the circulatory apparatus. It appears as a purely nervous phenomenon, but close analysis will give it a different interpretation. The respiratory limitations are becoming more and more evident. Especially is dyspnea noticeable when the ingestion of acid and gas producing foods combine mechanical obstruction with demands for large oxidation. The heart now yields, in these paroxysms, the stethoscopic and physical signs of weakened myocardium, and is on the verge of valvular inefficiency from peripheral traction.

The prognosis is that some day there will be a call

at the patient's door to which he will not respond, or may be, that surrounded by a social circle his eyes will suddenly lose their luster, his tongue forget its cunning, and he will thrust into their experience the deplorable, foudroyant and overwhelming sequence of cardiac changes due to acid auto-intoxication.

The corollary conclusion is that acids should not be employed freely or promiscuously in our foods and drinks. That in most cases they act as irritants to the circulatory apparatus. This fact is especially to be noted in cases of heart weakness or circulatory lesions. The principal demand upon the physician is that of oversight of the ingesta. Numerous cases will demand the employment of alkalies and antiseptics to overcome acidity and fermentation.

## THERAPEUTICS OF THE SENILE HEART.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY ASA F. PATTEE, A.M., M.D.

EMERITUS PROFESSOR OF SPECIAL THERAPEUTICS, COLLEGE OF PHYSICIANS AND SURGEONS.

BOSTON, MASS.

In this paper I purpose to dwell exclusively on my method of treating the lesions and functional derangements of the heart in old age.

Naturally, with the term "old age," there is pictured in the mind the infirmities and decrepitude of accumulated years: the coldness of withered fingertips, the odor of decay accompanying lack of oxygen from the weakened circulation, due to the worn-out organ which has labored so faithfully for threescore years and ten.

Yet this is not invariably the condition. Time can only be computed by externals; organically, a man may live, develop, enjoy, suffer, linger and die of old age at 45. Circumstances—the most finite of all things—alone determine our length of days, and the period at which we shall begin to deteriorate. Much, very much depends upon our environments; the strain to which this mortal machine has been subjected, and the degree of mental force expended. Given, an ordinarily healthy man's body, his capacity for endurance is determined by habits of life, manner of living, and general trend of thought.

It has been the popular opinion in order that a man may live out his full number of years that the heart must be strong in the beginning. When the human being comes into the world our first solicitude is for the heart; it is our key to all phenomena of strength and weakness. From birth throughout his progressive development of childhood, adolescence, middle age and decay, our finger is on the wrist, our ear at the chest.

What is the typical "senile heart" and by what signs may we recognize it? A thorough distinction between physiologic and pathologic changes must here be made. Physiologically, the heart in old age seems naturally to resume certain conditions which it lost with childhood, the most common of which may be seen in the quickened pulsations.

The familiar comparison of the heart to the size of the person's fist would be as inappropriate in old age as it is in infancy. While this enlargement as found in old age may generally be classed as a pathologic condition, to which we give the name "hypertrophy," we must remember that it is not an invariable indication of heart-failure. Again, as in the blood vessels: in infancy the coats are thin and fragile, rendering them susceptible of rupture. In old age we meet with pathologic conditions which bring about very similar results, by loss of elasticity of the coats of vessels; rendering them friable, with consequent liability to rupture.

In the first instance—that of the infant—we have a physiologic condition, coming, if I may be allowed to so express myself, from physiologic functioning in an immature organ or system, while in the latter case—that of old age—we meet with tissue that has been worn out or weakened by long use, or improper treatment; "the muscular fibers becoming weary with too much work, or impoverished by scanty nutrition;" the debility being brought about by various means. Unnatural demands upon the contractile fibers of the heart bring about the features of cardiac senility, let the age be what it may.

We might theoretically claim that the heart would never cease its pumpings if the motive power supplied by the contractions of its muscular fibers were never lost. But heart tissue, as with all striated tissue, fails after awhile to respond to exorbitant demands, or it may become exhausted from mal-nutrition. By this it may be seen that heart failure may arise in itself, on account of impairment of its nervous or muscular elements, or by reason of some mechanical impediment to its workings, or, as Foster tells us, "by nervous influences proceeding from the brain, or brought into operation by means of the central nervous system."

In old age the alterations in structure of the walls of the blood vessels are always in evidence.

### TREATMENT.

Three factors,—which from their close relation are of equal importance, enter into the treatment of the senile heart, viz., diet, rest, and medicine. Let us consider the

*Diet.*—With increasing years we generally find a cessation of the ordinary stomach troubles which are so common in early life, and with their disappearance we have consequent increase of appetite, by the indulgence of which the fat-producing powers of the tissues are increased and their power becomes weakened thereby; the muscular fibers of the heart suffering from the same fatty degeneration which all muscular tissue undergoes when subjected to like conditions, and as the excess of general nutrition calls for extra exertion on the part of the heart which the weakened fibers are unable to accomplish, the result is dilatation and irritability of the heart substance.

Excessive eating and drinking is fatal in cardiac troubles. We find the person complaining of breathlessness after taking sufficient food and drink to satisfy his voracious appetite, and he is glad to lie down and keep quiet for an hour or two, until the pressure has subsided. Fortunate the person who has led an abstemious life, for the sacrifice will not be so great. The gourmand will tell you that he would forfeit several years from his life rather than relinquish the pleasures of the festive board and adopt the rigid diet his condition demands; for there can be no cardiac disturbance after middle life which does not call for total abstinence from all undue indulgence of physical appetite.

Our investigations should not begin or end with the heart alone; they must include the habits of the individual; the everyday things which go to make up

the person's sum of living—mentally as well as physically—for at this period of near approach to absolute knowledge it would be absurd, and indeed a most abject admittance on the part of the physician or physiologist to deny the close relations existing between the mind and body, or to ignore their interdependence upon each other for the perfect health of either, or that the body can be in healthy poise with the mind ill at ease. Objective conditions can never be separated from the subjective; as we wrestle with the problems which deal with our physical man, the mental is equally squaring itself with the vital organism.

The young plant, with its superabundance of vitality will grow and develop almost without sunshine, and with sparsity of soil. It is after the plant has passed maturity, and the sap of vitality runs slowly, and the electrical principle is on the wane, that we are called upon to protect it and give it artificial support. At this period we may look for parasitic growths and unhealthy phenomena. So it is with the living animal organism. While development is going on, the organic powers are, in the untainted body, equal to all physiologic requirements. It is after the fires of life have lost their sparkle and the animal powers are running low, that we may look for organic lesions,—especially of the heart. Energy and life may be considered synonymous terms, and nature never intended that either one should terminate abruptly. We are the *alter ego* of nature, and no natural phenomena begins or ends abruptly.

In the details of our treatment we must be guided by the various symptoms as they present themselves. Stimulants, so generally recommended in the weakened condition of the aged are, as a rule, to be avoided. In edema, all liquids which are not absolutely necessary to quench the thirst of the patient must be withdrawn; and the periods between meals of sufficient length to prevent any encroachment upon active digestion by a fresh relay of food. In cardiac weakness, digestion goes on less rapidly from insufficiency in quality and quantity of the gastric juice, hence the periods between meals must be longer than when in health, and less food should be taken at a time. Let the heartiest meal be at noon, and the lightest at night. Cardiac troubles of themselves often create an abnormal appetite, and this, together with the fact that our most frequent sufferers are those naturally fond of the good things of the table, renders regulation of the diet the most difficult thing for the physician to carry out. Even the specter of sudden death loses its power to frighten the victim of an abnormal growing hunger.

*Food.*—No matter what the patient's habits may have been, I take from the *menu* all condiments and stimulating foods, all fruits unless they go to form part of the regular meal, also all vegetables with the exception of small quantities of mealy baked potatoes, eaten with cream or milk. Vegetables are composed of more or less water and woody fiber, are bulky, and fill the stomach and bowels with gas; their nutritive qualities do not compensate for the space they occupy.

While we can not (and it would be unwise for us if we could) treat our patients like so many machines, to be fed at will, we must yet insist upon regularity as to the time their meals shall be taken.

Flint says words to the effect that the man who closely watches his digestion, timing every article of food which he puts into his stomach, as it is being acted upon by gastric digestion, watching its progress from thence outward, never escapes being a victim of dyspepsia. From this, as well as other reasons, I hold no argument with my patient as to what he shall eat, or in what manner it shall be prepared, but simply put before him certain rules—verbally or in writing—which he is to follow, and these need not necessarily be so limited as to give him any real cause for complaint.

Probably the total withdrawal of tobacco in any form will cause as much rebellion from our male patients, as any deprivation in the way of food or drink.

Just before meals a teaspoonful of bovinin in a tablespoonful of water is a most excellent adjunct to the food, increasing the flow of gastric juice and obviating flatulency. Raw oysters may be eaten, but should not constitute the meal. Of fish, we have cod, halibut, shad, perch, and pickerel broiled, with butter sparingly. Of fresh meats, sirloin steak well done, with a little butter, chopped beef with one-tenth of fat breakfast bacon, poultry, pigeons and game. All meats should be recently slaughtered, and all fish freshly caught. The cooking should be done expeditiously. With the meat and fish may be eaten such relishes as watercress in its season, dandelion greens, spinach, asparagus and celery, in very small quantities. A small amount of baked sour apple may be eaten with the evening meal with bread and butter and a teaspoonful of pineapple juice as a digester. The honeycomb part of tripe broiled will be an acceptable change to the diet occasionally, if the patient likes it. Bread should form a considerable part of every meal; it must largely take the place of potatoes, and wholly so that of cake, puddings, and all kinds of pastry and confections. The bread should be toasted at night, and should always be so eaten if there is much edema present. The proper way to toast bread is by first putting it in the oven and letting it dry slowly, then brown it quickly over the coals. The bread in every instance should be made of baking powder in preference to yeast.

The daily amount of food eaten should be so regulated that the same quantity will be taken at every meal. The breakfast should be at either 7 or 8 o'clock, the midday meal at 12 or 1, and the evening meal at 6 or 7 o'clock.

*Drink.*—As to the drink, many physicians say that hot water possesses most salutary properties in heart troubles, but I prefer some weak aromatic tea, as checkerberry, ginger, clove, or other aromatics of like nature; of these the patient never seems to tire. In fact I have generally found it preferred to the cup of washy, weak tea which, after having drank it strong all their life they can never be reconciled to have diluted. They prefer aromatic drinks a thousand times over, as these give them no painful contrasts of past days of freedom and unrestriction.

Let this thing be always borne in mind: the danger lies in eating too much, rather than too little, and also that wines, malt liquors, and distilled spirits are *not* food for the heart, and do not by their use tide over dangerous symptoms.

*Clothing.*—A few words regarding the clothing and care of the body, and then we will proceed to the medicinal treatment: in summer the patient should wear next his skin, light weight silk underclothing with light weight cotton and wool shirt over it; in winter these should be of medium weight. After

many careful observations with different textures and weights this has proved to be the best. Dressed like this the patient will seldom get cold, or be cold, or get into a perspiration.

*The Bath.*—Only warm baths should be used in cases of senile heart, and the temperature should not be high enough to heat the blood. No exact rules as to degree can be given, as the sensitiveness of the individual varies with his condition and the state of the atmosphere. Hot sponge bathing and hot shower baths are of great advantage. Hot-air baths will be found useful in many cases, but they must be of short duration and given understandingly.

*Remedies.*—The great object of the treatment is to increase the muscular power and nutrition of the heart, and give comfort to the nervous system. The drugs most potent to accomplish this are digitalis, strophanthus, convallaria, spartine sulphate, adonis vernalis, barium chlorid, nitrate of strychnin, sodii arsenias, glonoine, paraldehyde, chloralamid, chloralose, cimicifuga, collinsonia, cactus grandiflora, prunus virginia, pulsatilla, salicinum, sodii valerianas, tablets of nuclein solution, proto-nuclein powder, glycero-phosphate of lime, gaffein, quebracho, kola nut, morphia, atropin, iron, copper arsenite, gold, calomel.

The earliest indication that the heart is growing old is a feeling of emptiness and uneasiness in the cardiac region of the chest, radiating around the nipple. The heart beats will be feeble, the pulse compressible. Regulate the diet and habits of the patient, remove constipation and indigestion. Give 30 grains of bicarbonate of soda one hour before meals in four ounces of water or aromatic tea. This treatment will also be aided by the following:

℞. Tr. Cimicifuga.
Tr. Apocyni cannab . . . . . āā, ½ dr.
Tr. Hydrastis . . . . . 1 dr.
Tr. Zingiberis . . . . . ½ dr.
Aqua cinnamoni . . . . . 10 oz.
Mix. Give one to three teaspoonfuls after meals.

If this plan is followed out, this first downward step will be turned backward, and the patient be made comfortable, if he will obey orders. If there is indigestion, give 10 grains of peptinzyme before and after meals, with 2 grains of proto-nuclein.

If the patient comes to us with swelling of the feet, when exertion, though light, brings on dyspnea, then we must give the patient *rest*, which must be *absolute*, for a few days or even weeks. Carefully regulate his diet, and give the following:

℞. Tr. digitalis . . . . . 2 dr.
Fluid ext. berberis aq . . . . . 1 dr.
Tr. cimicifuga . . . . . 1 dr.
Tr. rhamni. pursh . . . . . ½ dr.
Tr. apocyni cannab . . . . . 1 dr.
Aqua gaultharia . . . . . 5 dr.
Glycerina . . . . . āā 5 dr.
Mix. Give one to two teaspoonfuls after meals, in wineglass of aromatic tea. Three grains of the iodid of strontium may be given in connection with the above. Continue this for one week or ten days, and then give the following:

℞. Strychnin nitras . . . . . 1 gr.
Acidi nitrici . . . . . 2 drops.
Tr. ferri chloridi . . . . . 5 drops.
Aqua . . . . . 4 oz.
Mix. Take one teaspoonful before meals, in a wineglass of water.

℞. Fluid ext. pruni virgi . . . . . ½ oz.
Take from ten to fifteen drops after meals, in tablespoonful of water, and at the same time, five drops of liq. sodii arsenitis.

In attacks of angina, nitro-glycerin is of great benefit; one one-hundredth grain tablet three or four times a day will quickly relieve the pain. In some cases the patient will require an active cholagogue purge; the following is an ideal one:

℞. Podophyllin, res . . . . . 4 gr.
Ext. rhamni pursh. . . . . 10 gr.
Euonymi, res . . . . . 20 gr.
Irisin, res . . . . . 5 gr.
Ext. colocynth. comp . . . . . 10 gr.
Ext. rhamni pursh . . . . . 10 gr.
Mix. Make twenty pills; take from one to three pills after supper, and repeat as required.

We often have to use narcotics to quiet pain and induce sleep, that

"Knits up the ravelled sleeve of care."

The following is a good model:

℞. Morphin sulph . . . . . 20 gr.
Atropin sulph . . . . . 1 gr.
Caffein . . . . . 1 dr.
Sodii benzoat . . . . . 2 dr.
Mix. Divide into one hundred and twenty powders.
Give one powder once or twice during the twenty-four hours, either per mouth, rectum or hypodermically.

When there is considerable ascites, forming part of the general dropsy, it is best to aspirate, as it saves a good deal of time, most of the serum is gotten rid of, and then the remedies will act more kindly. I usually aspirate from the scrotum, and not wait for the abdomen to fill. Every ounce of serum can be drawn from the limbs in this way. In women, aspirate from the labia.

If at any time the patient should have severe dyspnea, give the fluid extract of quebracho, in doses of fifteen to thirty drops, every three or four hours in water. I have found it invaluable.

In cases of sub-acute rheumatism the following will give quick relief:

℞. Fluid ext. cimicifuga . . . . . } āā 5 dr.
" " pilocarpi . . . . . }
" " manaca . . . . . }
" " piscidia . . . . . }
Mix. Give twenty drops every three hours, in a tablespoonful of water.

If the parts are painful, the following will give quick relief:

℞. Ichthyol . . . . . 1 oz.
Aqua . . . . . 8 oz.
Mix, and apply to the parts every four hours; cover with cotton.

In cases of senile heart, when we find the patient loaded down with fat, a lax abdomen and distended intestines, the following will give good results:

℞. Rubidii iodidi . . . . . 2 dr.
Fl. ext. adonis vernalis . . . . . 1 dr.
" rhamni pursh . . . . . }
" euonymi atrop . . . . . } āā 1½ dr.
" leptandra . . . . . }
Elix. simp. glycerini . . . . . āā 2 oz.
Mix. Take one-half teaspoonful before meals, and one hour after, in a wineglass of water.

The whole body should be well rubbed with the following ointment: take of equal parts of beef marrow and leaf lard, recently prepared, eight ounces, oil cinnamoni, oil eucalypti, and creasoti, of each one drachm. Mix and use once a day, special attention being given to the abdomen, for at least fifteen minutes each time.

If pneumonia supervene, the following can be given:

℞. Calcii chloridi . . . . . 4 dr.
Strychnia nitras . . . . . ½ gr.
Tr. pulsatilla . . . . . ½ dr.
Infusi serpentaria . . . . . 8 oz.
Mix. Give one teaspoonful every two hours, in wineglass of spearmint tea.

When we have a gouty condition existing with senile heart, I have given the following with especial benefit:

℞. Auri et sodii chlo . . . . . 16 gr.
Sodii arsenias . . . . . 15 gr.
Sodii bromid . . . . . 1 oz.
Aqua . . . . . 8 oz.
Syr. simp . . . . . 8 oz.

Mix. Give from ten to thirty drops after meals, in wineglass of water. In some cases one to two drops every two hours will do better.

The following is well adapted for nervous fluttering about the heart in nervous women:

℞. Fl. ext. pulsatilla . . . . . .
" caulophylli . . . . . .
" cactus grand . . . . . āā 1 dr.
Aqua camphora . . . . . 4 oz.

Mix. Give one teaspoonful every three hours.

For the "tobacco heart," in elderly people:

Strychnin arsenate . . . . . 1 gr.
Quinin arsenate . . . . . 2 gr.
Salicin . . . . . 1 dr.

Mix. Make sixty powders. Give one powder after meals, or half a powder every three hours for six doses, dry on the tongue. This not only tones up the heart, but destroys the appetite for tobacco.

### DISCUSSION ON PAPERS OF DRS. BABCOCK, PATTEE AND ENGLISH.

DR. ROCHESTER—As to Dr. Babcock's paper, there are one or two points upon which I wish to take issue with him in regard to the indications for digitalis. He said that in those cases he reported there were all the indications for digitalis present, and then he states there was unequal action of the two ventricles; that the action of the left was greater than the action of the right. If we find the left ventricle acting strongly, it seems to me that it is an absolute contra-indication to the use of digitalis. The subject under discussion is the matter of the use of digitalis in certain conditions of the two ventricles, and his conclusion in that case, I think, was absolutely contrary to his own reasoning.

In regard to Dr. English's paper, as to acid intoxications, there is no question in the mind of the profession, I think, that we have numerous acids produced in the body, and have acid auto-intoxication creating cardiac instability; but to attribute to that cause the sudden deaths from cardiac instability is pushing the matter too far. There are a great many things which enter into the production of a weak heart; we must take into consideration that we have toxemias of various kinds in the body when we have that condition he described, in which the excretions showed great acidity. We must not consider simply the acid alone of the toxemias present. The careful investigation of the excretions, as to amount and chemic constituents, is of more importance than the simple acidity or non-acidity, or the lessened alkalinity of the blood itself.

In regard to Dr. Pattee's paper, it seems to me that the Doctor has gone wild over the matter of medication, giving us all the possible drugs that could be used in any way in connection with the heart. It seems to me that the present trend of medical thought is to simplify our treatment, and find out the actual physiologic action of drugs before giving them. He says that stimulants are contra-indicated in almost all cases. It would seem that this is not true, as we find in the condition of age the worn-out tissues which need stimulation if stimulation is ever needed at all, and these would appear to be the very cases in which whisky should be of use. It is a mistake to consider the heart without relation to the rest of the body. We must consider the heart in relation particularly to the capillary circulation, and in that matter I think we find the key to our treatment of all these senile hearts. In the capillary circulation if we find the vessels hard and thick as they generally become in advanced years, then before giving any medicine whatever to increase the force of the heart's action, we must relieve as far as possible this contraction of the capillaries, and that can be done by various physiologic methods of procedure, by baths and by properly given friction. That, I think, is of more importance than the administration of drugs to cause sweating,—such as the pilocarpin—or the use of cholagogue cathartics, etc. The main thing, it seems to me, in old people is to keep careful watch of the capillary circulation. Then if we find that there is marked deficient action of the heart, we must pay attention to the nervous system, and in my opinion there is no drug that comes up to opium in that matter, in controlling the action of the heart and enabling the system to go on as it properly should.

DR. H. B. SEARS, of Wisconsin—I think if we could speak of conditions perhaps more than of remedies, we should be more likely to agree, as well as be more logical in our use of remedies. It seems to me that the two cases related in Dr. Babcock's paper cover the case very well, and illustrate the use of heart tonics or stimulants. In the case in which he had the bad effect from the use of digitalis he says that he treated an enlarged liver, with the accompanying condition of what we might call venous stasis or peripheral edema. I believe it is conceded to-day that heart tonics, of which perhaps digitalis may be the type, should not be given when there exists edema or ascites until the edema or ascites is first relieved by aspiration, when the heart tonics will be effectual. Tonics are also contra-indicated in high temperature. I think these points are very important. It is not that the heart tonic is at fault, but the conditions are unfavorable for its absorption and favorable working. If we have the blood vessels already pressed upon by transudation, we can not expect that the heart will recover under this unfavorable condition. If by aspiration, or perhaps by the old-fashioned bleeding—which is, however, unnecessary—we can relieve this transudation then we can, by proper measures, bring about a normal condition.

Dr. Pattee said he would aspirate the scrotum or the labia until the edema left. It seems to me that if he would give purgatives and then give his heart tonics, strychnia included, he would accomplish all that is desired.

DR. CHAPMAN, of Louisville—I was deeply interested in the paper read by Dr. English, and am also glad to find that the trend of the papers has been toward a study of auto-intoxication as a cause of disease, for it seems to me that scientific research just along this particular line will, in the near future, explain to us a number of conditions, particularly as to the etiology of disease, in which the microscope has entirely failed. Dr. English, in speaking of the instability of the heart and its relation to an acid auto-intoxication has mentioned facts in which I heartily concur. At the same time it seems to me that if he had carried his investigations a little further he might have been able to make out the particular acid and the particular disease of the heart. For instance, within the last few months I have been making some investigations as to the chemic change in the stomach as the cause of disease, particularly rheumatism. Out of twenty-five or thirty cases that I have examined carefully, in no instance have I failed to find lactic acid present in the stomach. Lactic acid, it has been known or believed for years, is the cause of rheumatism, and I am satisfied that that assertion is sufficiently established in the minds of those present here. Accepting that as a truth, I have taken twenty-five or thirty cases of rheumatism, both muscular and articular, and examined the contents of the stomach to see what acid we would find there, or whether we would in all instances find acid present. I have conducted the examinations in this way: we know that lactic acid is present while food is being digested, that is for one or two or three hours after the meal has been taken. It is then normally in the stomach. But Boaz and Ewald have proved that lactic acid is abnormally present after the third or fourth hour. I have proved by reagents, by the ferric chlorid, that lactic acid is present in these cases of rheumatism, and this leads me to the point I wish to make, that we see in all cases of rheumatism, or nearly all cases, valvular disease of the heart or endocarditis; then if lactic acid is the cause of rheumatism, this is the agent in rheumatism which causes the heart lesions.

DR. STOCKTON—I do not feel that I am called upon to enter into a discussion on this subject, but I can not allow the occasion to pass without protesting against the theory that cardiac diseases are commonly caused by the acid of the blood. Nor can I refrain from criticising the last speaker in his statement that lactic acid is found or that it has anything to do with the matter whatever. Where it does occur in very large amount you do not find heart disease nor do you find rheumatism.

DR. WEBSTER, of Chicago—I want to call attention to the points which Dr. English makes as to the danger of acids, and to the fact that he draws no distinction between vegetable acids and mineral acids. He would lead us to infer that if we give vegetable acids these increase the acid, or rather diminish the alkalescence of the blood, because we never have an acid reaction in the blood in health. If there

is any one fact that seems well established, it is that the giving of vegetable acids increases the alkalescence of the blood. There is another important point, and that is the elimination of carbon dioxid. Oxygen is necessary in the carrying on of life processes in the body, but it is just as necessary that the waste tissues should be eliminated. We know that carbon dioxid is carried away from the tissues where it is produced, to the lungs where it is eliminated as a bicarbonate of soda. I must congratulate Dr. English on calling attention to this important point, and to the part which acids play in this condition and, especially, one point that he emphasized, probably the keynote to the whole question—the fact that the blood pressure is increased by the presence of acids in the circulatory system, and the increase of peripheral resistance increases the work of the heart. Anything that increases the work of the heart must lead either to its hypertrophy or, if that work be thrust upon it suddenly it must lead to its fatigue. I do not believe that death is ever caused by auto-intoxication in an otherwise healthy heart, and I contend that there is no condition in which there is an acid state of the blood during health.

DR. ENGLISH—I thank you for the reception which you have given my paper. I would simply respond to the first speaker, that he must not imagine from the fact that I have given my views on the acidulous conditions that these are the only views that I have with regard to heart disease. Of course it may seem, when defending a cause of that kind, that this is my peculiar view, and my only one. I feel that there are a great many things in which the paper is not complete, it having been reduced from one more elaborate. If I have called the attention of some of the other minds in this ASSOCIATION to the need of investigation in this realm, I think I have done all that I could have hoped.

## LECTURES.

### LECTURES ON INTRACRANIAL SURGERY.

#### XI.—THE SURGICAL TREATMENT OF INSANITY.

BY EMORY LANPHEAR, M.D., PH.D.
ST. LOUIS, MO.

(*e.*) Insanity due to softening. That portion of the cortical substance most prone to embolic and thrombotic softening is that which is supplied by the parieto-sphenoidal branch of the middle cerebral, or Sylvian artery, the left being much more frequently affected than the right. That softening of the brain—even of quite limited extent—often gives rise to insanity has for many years been a well-established fact; but the proposition to trephine in such cases is, so far as I know, wholly original with me, as I can nowhere find record of cases similar to my own. By the term "softening," I do not mean *cerebral abscess*—all surgeons would trephine for abscess if its location could be determined—nor to that condition formerly called "red softening," which is in reality only the initial stage of a suppurative inflammation and which if not arrested leads to destruction of the nerve fibers and cells by pyogenic microörganisms; but to that condition that follows cerebral hemorrhage, embolism of some vessel beyond the circle of Willis, or sometimes thrombosis in like region. We know that soon after the injury takes place the process of softening begins and gradually advances until a group of convolutions or even a whole hemisphere becomes but a creamy mass, containing degenerated nerve cells, masses of dark granules (blood vessels in a state of fatty degeneration), remains of connective tissue, etc., but no pus; the boundaries of such areas of softening are often quite distinct from the healthy brain tissue surrounding, which has led to the erroneous opinion that the degenerated substance becomes "encysted;" this is particularly true of softening following cerebral hemorrhage. If the skull be opened in such cases the brain and its membranes will often look swollen and feel as if there were a sac full of fluid beneath; the puncture allows the escape of the softened mass, semi-fluid in consistence, of purulent appearance, but in reality not pus. Here, one would naturally think, is a complete hemiplegia, a total aphasia, a hemianoposia, a one-sided deafness or other manifestation of an obliterative process in the brain, with softening as the pathologic condition—a state of hopelessness that should debar even the most venturesome surgeon. Perhaps so, if there be evidences of destruction of a whole hemisphere; but frequently the focus of softening is but a limited one, as in embolism of that branch of the middle cerebral which supplies the arm center and the speech area. This particular region is selected as one for illustration because it is not infrequently affected by embolic softening and because its contiguity to the frontal gyri often causes symptoms of mental irritation; though we often see patients affected by hemiplegia without aphasia, due to either embolism, hemorrhage or thrombosis, presenting evidences of profound irritation or disturbance in those convolutions which preside over the intellect, long after the subsidence of immediate pressure symptoms.

Every physician can call to mind, patients whose characteristics were irritability, irascibility, fits of mental aberration and even homicidal and suicidal impulses, of whom he has said to friends: "You must bear with this man as well as you can as he is not responsible—he has softening of the brain and nothing can be done for him." In former years I made this assertion many times, but now I am not so positive; in fact, I am convinced that many such cases are amenable to surgical treatment; not, indeed, as an operation to be made with the object of improving a paralysis or other manifestation of destruction of the cortex or communicating fibers, but of clearing out a quantity of irritating material and substituting one (like the blood serum or cerebrospinal fluid) which will within a brief period fill the cavity and will not give rise to symptoms of irritation.

The technique I have followed is this: the scalp having been properly cleaned and protected, a large flap of scalp and periosteum is turned back and a button removed at the point indicated by cerebral localization or otherwise. When the dura is exposed it is palpated; if indications of softening are not now present, the bone can be replaced and the scalp closed—no harm being done. If there be sufficient evidence of softening, another button is removed and the two openings joined, or the trephine hole is enlarged with forceps; when large enough to allow the underlying structures to be manipulated with ease the dura is cut with a good flap. Inspection proving the correctness of the diagnosis, a free incision is made through the pia and the softened brain tissue allowed to pour out. The cavity is irrigated with hot salt solution (temperature about 105 degrees F.) and left full of the same while the dura is closed with fine interrupted catgut stitches and the scalp sewed with a continuous catgut suture. No drainage is used and a firm compress of bichlorid gauze is applied with proper dressings. That such an operation is wholly practicable and may lead to improvement I have positively demonstrated. As an illustration the following case is cited:

*Insanity from Softening of the Brain—Operation—Complete*

*Relief.*—A. M., of Derby, Kan., age 56; had cerebral hemorrhage six years before my examination, involving speech center and area. At first he was completely hemiplegic and totally unconscious. After a few days consciousness gradually returned and later on the use of the leg was restored. At the time of examination the following note was made: "Aphasia is total, *i. e.*, practically so, his vocabulary being limited to 'You do, you do,' for yes, or acquiescence, and 'Um-um,' for no, or negation. Agraphia is total, but he recognizes some written or printed words which have been read and explained to him many times. His memory is fully as good as before the "stroke," but his intellect appears somewhat affected. Paralysis of right arm is complete, but a fair use of leg has been acquired. At times he is very irritable and has repeatedly threatened the life of his wife; for this, subsequently, he indicates that he is very penitent, and intimates that the impulse is beyond his control; in his sane moments he answers yes, very vigorously when asked if he regrets his mental irritability and moral irresponsibility; he complains of a band-like sensation around his head and often suffers intensely from headaches." Upon examination I made a diagnosis of softening of the brain involving the region of the lower part of the Rolandic fissure and possibly also a part of the spheno-temporal lobe as well as some of the parietal convolutions. I explained to him and to his doctors that no one beside myself had ever made the proposal to operate for cerebral softening, pure and simple, and that it was purely experimental, as well as not wholly without danger. The reply was that any danger would be encountered for a bare possibility of even incomplete relief from the fearful maddening sensations in the head.

Under such circumstances on June 27, 1892, assisted by Drs. J. F. Binnie and J. D. Griffith, I removed a considerable portion of the skull over the affected region. On turning back the dura there was disclosed a cloudy infiltrate in the pia and an apparent fluidity beneath. Taking sharp-pointed scissors I plunged them into the middle of what should have been the third frontal convolution. and withdrew them, open. There followed a gush of broken-down brain and other *débris* of creamy consistency to the amount of fully a pint; but no pus. The large cavity was carefully washed out with sterilized salt solution (*no antiseptic solution ever being permissible inside the skull*, except possibly in cases of abscesses) left filled as nearly full as possible with the fluid, the dura was replaced and stitched, and the scalp sewed into place without drainage, after careful arrest of all bleeding, and a firm compress of bichlorid gauze applied. The operation lasted but a few minutes, and the patient was put to bed without shock. He slept better that night than for months, awakening the next morning with the smiling indication that his head was better. There was a rise in his temperature to 99¾ on the second day when he insisted upon sitting up in a rocking chair. On the third day he was up, around the halls of the hospital with a profoundly cheerful "You do, you do," in reply to inquiries if he felt better.

The improvement was not temporary, as was predicted by some who heard for the first time my proposition that such cases can be relieved by operation. He was discharged on the fourteenth day in excellent condition mentally and physically.

To this day he has had no recurrence of the bad symptoms, is passing an enjoyable life in traveling, and has sent me, I believe, six other cases for trephining; and with his grateful "You do, you do" is spreading the good news that for such hitherto helpless cases there is a possibility of relief in surgical interference. There is no improvement in his speech nor in the use of his arm, but he thinks he has far better control of the leg than before the operation.

(*f*). Insanity of chronic hydrocephalus. Chronic over-distension of the ventricles, as well as subarachnoidean effusion, may end in terminal dementia. I have heard of only one operation for hydrocephalic insanity, and the result I have been unable to ascertain. It is justifiable.

3. *Epileptic Insanity.*—It is a natural and correct inference that so serious a disease as epilepsy would often lead to the development of insanity. Bucknil and Tuke calculate that epileptic insanity constitutes about 6 per cent. of all cases admitted to asylums; this does not include that very large class of cases in which epilepsy exists merely as a complication of the mental disease. In view of the number of cases, and the frequency of operations for simple epilepsy, I am surprised that I can not find any published reports of trephining for epileptic insanity. There certainly must have been many such operations already made. I know of two cases in this city, in the practice of Dr. A. B. Shaw, the history of neither having been published. The points of interest are these:

*Epileptic Insanity—Operation—Some Improvement.*—Mr. ——, who had been epileptic for many years, was suddenly seized with furor epilepticus. He was violently insane and at the end of ten days manifested no sign of improvement. He was therefore trephined upon both sides of the head. The skull was very thick and eburnated—fully one-third of an inch and like ivory, but there was no increased vascularity of the diploë as is so often met in general paresis. An opening, 2½ by 2½ inches, was made upon either side and the dura freely opened. It was exceedingly thick. No abnormal condition of the cortex of the motor region was discoverable. Upon his recovery from the anesthetic it was found that the insanity was gone. He had no recollection of any event which transpired during the ten days of his maniacal state. The epilepsy vastly improved for a long time and he was in good mental condition, but the openings finally became filled with firm, unyielding, fibrous tissue, after which the epilepsy gradually grew worse, then epileptic insanity developed and he was sent to the insane asylum where he now is; a second operation being refused.

*Epileptic Insanity—Operation—Change of Form of Insanity the only Result.*—Miss ——, age 32 years, developed epilepsy at puberty. The general health became impaired, the epileptic paroxysms assumed a very severe character and at about 30 led to the development of chronic delusional insanity. The same operation was performed as in the case just mentioned. She seemed much better for a time and the epilepsy was entirely relieved for eight months. Then the convulsions became bad again, delusions once more were established with marked prominence and the insanity was fully as bad, if not worse, than before the operation. The only change which occurred was in the form of the insanity—she had a severe grade of melancholia taking the place of simple delusional insanity.

The effect of the operation in this case was much like that of my second illustration of the traumatic variety, from dementia to melancholia. While these cases do not count for much in the way of encouragement, I still feel like advising experimental trephining in every case of epileptic insanity where there is any localizing symptom; and I am not sure but Shaw is right in making double windows in the skull over the motor region in cases presenting no localizing signs.

4. *General Paresis.*—In general paralysis of the insane we have far more numerous reports than in any other form of mental disease. It is in the first stage of this malady, if at all, that I shall look for beneficial results, for here we have a mental disease (so-called) which is dependent upon gross lesion, generally slight in extent at the outset. According to Maudesley, morbid adhesions of inflammatory origin, slowly spreading, between the cortex and its investing membranes, constitute the most characteristic lesions, being absent in only a small percentage of cases. If then, by surgical means, we can arrest the spread of the trouble while it still involves that part of the brain which presides over the higher mental powers and ethical feelings—the centers which first fail almost uniformly—we may prevent implication of the motor, sensory, trophic and vasomotor regions. Upon this argument numerous operations have been made and excellent results have been recorded, notwithstanding the teaching we have been wont to accept, viz., that the pathologic changes are

not purely cortical, superficial, but involve cells, vessels, fibers, neuroglia, and the ependyma of the ventricles; and that the degenerative process sometimes begins in the spinal cord. But we are compelled to accept clinical results regardless of our ideas of pathology—"conditions, not theories, confront us."

Claye Shaw has reported two cases of unquestioned general paralysis trephined at the Bamstead Asylum, in which the adhesions were broken up, iodoform dusted in freely and great improvement obtained. Another case was operated on at the Brockwood Asylum with the result that "there was marked relief of several prominent symptoms." (*British Medical Journal*, September, 1891.) Rey records a case (*Le Progrès Medicale*, Aug. 15, 1891), which was able to return home in six weeks and afterward remained calm and quiet instead of the opposite conditions, which were pronounced prior to operation. The subsequent history is unknown.

One operation for general paresis was made by Wagner at the Utica Asylum. Much fluid escaped from the sub-arachnoidean space, estimated at six ounces, and a number of adhesions were relieved. There was great improvement but the patient died in six weeks. The autopsy showed pachymeningitis interna chronica hemorrhagica with cerebral atrophy. Quite a large number of other operations have been recently published—nearly all with encouraging results.

5. *Syphilitic Insanity.*—This form of insanity may depend upon minute structural changes in the brain and meninges which can not, says Fournier, be distinguished from the lesions of diffuse, interstitial meningo-encephalitis; but much more often it is caused by gumma or gummatous infiltration (the disseminated miliary nodules of Engelstadt and Lancereaux). Gummata are most frequently situated in the dura and subarachnoidean space as: 1, somewhat hard, dry, white circumscribed tumors; and 2, grayish-red, moist, gelatinous, semi-transparent masses. Manifestly some of them can be readily removed by the knife; and as internal medication only palliates—rarely cures—such cases are typically of a surgical character. I have already detailed one successful operation for syphilitic intracranial growth characterized by insane symptoms. There can be no doubt about the propriety of operation whenever there is any certainty as to the location of the irritating deposit. And even if no marked local disease be found there may be decided improvement following operation—though just *why* the change occurs I can not explain. Through the kindness of Dr. William Fuller, of Grand Rapids, Mich., I am enabled to present this history of such a case:

*Syphilitic Insanity—Operation—Improvement but not Cure—No Lesion Found.*—The patient was a man of 30 years of age, who was insane for seven years; the disease was unquestionably of syphilitic origin, but he had been flooded with mercury and iodid of potassium without benefit. The most violent epileptic seizures were of frequent occurrence. His mental condition was one of almost total wreck; his mental reflexes were nearly perfect but disconnected—he could entertain but one idea at a time. For example, when his mother visited him after a separation of three months he greeted her as if he had parted from her but an hour before; while talking with her the dinner bell rang, when he at once left her and walked to his meal and did not remember to return. He was never vicious, nor showed any evidence of interest in surrounding things or persons—he was perfectly apathetic. Examination showed marked asymmetry of the head; the right parietal eminence looked like a saucer and careful investigation showed this want of symmetry to be acquired, not congenital. From this aspect it was presumed that some motor disturbance would be found upon the left side of the body, but this was not the case. The right side of the body was somewhat atrophied, and much weakened in its muscular contractility; the epileptic seizures were at first confined to the right side, and after they developed into general convulsive epilepsy the spasms invariably began in the right side. The right pupil was permanently dilated but was still sensitive to light. There was some incoördination. Although the external indications pointed to trouble upon the right side of the head, the localizing symptoms positively indicated the left hemisphere as the seat of irritation and at the operation these, instead of the local signs were followed. The greater portion of the left parietal bone was removed; the bone varied greatly in thickness at various points, being more than a half inch thick at the Rolandic region. The dura was not affected and the subjacent brain appeared normal. There was considerable enlargement of the Pacchionian bodies.

There was little shock from the chloroform or operation. Two hours afterward he awakened and asked: "Has my wife gone home?" a moment later: "Has mother gone, too?" and a little later: "Did they go together?"—three questions connected with each other, in logical sequence, something unknown in the history of his disease. He improved rapidly, so that in two weeks he went all about the city with his nurse, paying carfare correctly, obtaining proper transfers, making purchases, introducing friends to each other, etc. The change was marked and gratifying. Several weeks after the operation he again became subject to epilepsy—having many severe convulsions close together; he finally sank into a comatose condition and appeared to be dying. Dr. Fuller was called and found the patient profoundly unconscious, pulse almost imperceptible, the respirations about eight to the minute, the face cyanotic and the general appearance that of a man *in articulo mortis*. The opening in the skull was greatly elevated and tense beneath the scalp instead of being depressed and pulsating. He therefore thrust a bistoury through the scalp and dura just as one would lance an abscess. Several ounces of serum escaped and two or three ounces of blood from a cut vessel in the meninges. This was caught and an antiseptic dressing applied. The cyanosis and other bad symptoms immediately subsided and in a short time the patient was up as if nothing had occurred. He soon after developed suicidal impulses and was sent back to the Michigan Asylum, where he died nine months after the operation in the post-epileptic stage of a severe convulsion. No autopsy was permitted as the asylum physician characterized the operation as a gross outrage, in spite of the marked improvement!

Had an operation been performed upon the right side of the head, subsequent to the one upon the left, the probabilities are that cure might have resulted. It is certain that operative treatment is the only one which promises much in syphilitic insanities. As I said in speaking of intracranial gummy tumors, we are puzzled at the inefficacy of internal medication; the symptoms occasionally yield temporarily to our remedies but return again and again. The conclusion at which I have arrived from a study of quite a large number of cases of cerebral syphilis is similar to that of Mr. Horsley, viz., the only hope of permanent relief lies in removal of the affected area whenever it is accessible; nor is it absolutely necessary that any lesion be found in order to effect a cure, as sometimes the insanity yields to simple craniotomy. Whether or not such a result is due to the curative action of the operation *per se*, as claimed by J. William White, matters little so long as the mental trouble is cured.

6. *Paranoia.*—Burckhardt has detailed six cases of this form of insanity with marked hallucinations, which he subjected to operative treatment. In the two cases he aimed to intersect the paths of association, which he thinks transmits the pathologic impressions coming from sensory parts and certain ideogenic areas of the brain; a portion of the frontal and parietal lobes, before and behind the ascending convolutions were removed with very satisfactory results in one case,

the other dying from convulsions on the sixth day. In three other cases the hallucinations were more or less acute and in these the operator attacked the centers through whose injury sensory and motor aphasia are produced, and removed a part of the first temporal and the third frontal convolutions on the left side, which appeared diseased, and with satisfactory results. In one patient, ablation of portions of the right superior parietal convolution and the supramarginal gyrus caused paralysis of the left arm for seven weeks and transitory paresis of the left leg. Recovery from the paranoia was perfect. From these experiments it seems possible that with additional experience and a minute study of the pathologic changes seen in the brain, the knife may be the means of restoring to reason many cases now considered incurable.

RULES FOR TREPHINING FOR INSANITY.

1. Every depressed fracture of the skull should be subjected to operation at the time of accident, regardless of the amount of depression and irrespective of pressure symptoms.

2. Every case of prolonged unconsciousness following a blow in the frontal region should be trephined for exploratory purposes; upon both sides if necessary.

3. The skull should be opened in all cases of insanity dependent upon trauma, at the earliest possible moment after development of the mental symptoms.

4. Operation is justifiable in every case of serious suspicion of tumor, abscess or softening of the frontal (or any other accessible) region.

5. Operation is advisable in every insanity following cerebral or meningeal hemorrhage in which localization is possible, the clot accessible and the mental trouble of recent development.

6. Every case of insanity developing in the history of otitis media suppurativa deserves immediate exposure of the favorite site of cerebral abscess.

7. Trephining for the purpose of breaking up adhesions of an old meningitis has been successfully practiced though it is not to be strongly advised.

8. Establishment of permanent drainage beneath the scalp is permissible in the beginning of a terminal dementia succeeding chronic hydrocephalus.

9. Operation for epileptic insanity is advisable whenever there are symptoms pointing to a focal lesion.

10. Experimental trephining in the early stage of general paralysis of the insane is considered worthy of further trial.

11. Operation should be done for even a suspicion of the existence of a gummy deposit in the bone or meninges.

12. The formation of fenestræ in the skull is permissible whenever there is evidence of intracranial pressure, even of unknown origin.

## SOCIETY PROCEEDINGS.

### Association of Military Surgeons of the United States.

[Special correspondence of the JOURNAL.]

*Fifth Annual Session, at Buffalo, N. Y., May 20–23, 1895.*

The meeting this year was in every respect an unqualified success, to which the lavish entertainments of the citizens of Buffalo greatly contributed. In a professional paper like the JOURNAL, these should be passed over with a few words, but at least an enumeration of them will be permitted as a slight commemoration of the successful efforts on the part of Buffalo.

A *conversazione* of the Microscopical Society, a similar entertainment at the Iroquois Hotel, a magnificent full dress reception at the Buffalo Club, a carriage drive to Fort Porter and other points of interest in the city, a promenade concert, review and parade, tendered by the Colonel and officers of the 65th Regiment N. G., N. Y., and a well-planned excursion to Niagara Falls with a visit to the electric power plant, composed the official program of festivities, which were interlarded with private dinner parties and luncheons, notably those given by Professor Park and Dr. Chauncey Pelton Smith.

These entertainments induced a closer acquaintance among the medical officers present and aided greatly in the harmony of the meeting. The sessions were opened at the Star Theater with a prayer by Rev. William C. Wilber, followed by Hon. Herman T. Rogers, who welcomed the visiting surgeons, on behalf of Governor Morton, to the State of New York. He was succeeded by Hon. Edgar B. Jewett, the Mayor of Buffalo, who spoke for the city of Buffalo, and then by Prof. Roswell Park, President of the State Medical Association. The latter gave a very interesting historical review of the status of the military surgeon. Col. Geo. C. Fox then welcomed the Association on the part of the National Guard, and eulogized the efficiency and progressive spirit of its surgeons. Announcements were then made on behalf of the Buffalo Committee of Arrangements by Major Albert H. Briggs, Chairman. (It may be proper at this stage of my report to speak of the very successful administrative labor of Dr. Briggs, as the elaborate program of the committee did not fail to connect in every detail.)

General George M. Sternberg, Surgeon-General U. S. Army, and President of the Association, then delivered the annual address. While giving credit to the superior facilities of civilian surgeons for gathering experience, he laid stress upon the necessity of special training for the military service. If more of this had existed at the outset of the War of the Rebellion, a great number of lives, sacrificed not only through wounds, but by disease, might have been spared. He illustrated from his experience at Bull Run, what unfortunate conditions resulted from the want of organization. Very little surgery can be done at the fighting line, and a well-trained corps of sanitary soldiers will in future wars greatly facilitate the immediate care of the wounded.

He then enumerated the changes which will take place in military surgery owing to improvements in firearms, small arms as well as artillery, and gave a description of the Hebler tubular bullet, the very latest projectile devised to still more reduce the weight of ammunition and increase the flatness of the trajectory.

The address was replete with practical instruction and it is to be regretted that no more space can be given it here.

The meeting then adjourned to the amphitheater of the University of Buffalo, where thereafter the sessions were held.

The first paper on the program was

CONSERVATIVE SURGERY UPON THE BATTLE-FIELD,

by NICHOLAS SENN, Surgeon-General, N. G., Ill. It was so full of practical advice that it will be difficult to give a synopsis of it, and be just to the great amount of well-digested information. The following are the main points: military surgery will no longer countenance mutilating operations except when nutrition of the limb is arrested by the injury. Prompt aid on the battle-field is first to be aimed at, and only to be obtained by a well-trained hospital corps. This embraces the treatment of hemorrhage, to counteract shock, primary dressing, immobilization and transportation. As to hemorrhage ligation can not be relied on. The best measures are elevation of limb, digital compression, forced flexion with fixation, elastic constriction (with regard to the latter it has been found that it can be borne for from four to six hours without danger of gangrene or paralysis), antiseptic tamponade. In hemorrhage of the three cavities the great triumphs of antiseptic surgery can be achieved. Favor the escape of blood from the brain by antiseptic drainage. In penetrating wounds of the chest, pack the orifice with an antiseptic tampon and secure immobility by gunstraps or other means at hand. The same means should be employed in abdominal wounds, adding to them compression of the aorta, if the injury appears below the bifurcation; direct compression in the direction of the track of the bullet. Where possible, seize

the bleeding vessel with hemostatic forceps, leaving them temporarily in the wound if necessary. Ligation will usually not be done on the battle-field. Silk is a much safer material than catgut. The ligature should not be tight enough to rupture any of the coats of the vessel. Veins should be sutured in incomplete wounds, in the same manner as Lembert's suture. Hot water will seal smaller vessels. Stypties should be condemned. Infusion may become necessary and the 6 per cent. salt solution, about 1,000 grams, is safest. Auto-transfusion by ligation after elevation may be necessary. As to shock, its effects are felt immediately after injury, while in hemorrhage the intensity of the symptoms increases progressively. Inhalation of nitrite of amyl and hypodermic injections of strychnia, one-fifteenth to one-twentieth grain, repeated are the best treatment with alcoholic or diffusible stimulants and recumbent position. The primary dressing should consist of the antiseptic package to be carried by each soldier. The best place for this is sewed inside of the cartridge belt; half an ounce of salicylated cotton, embedded in it two grams of boric acid and half a gram salicylic acid with a triangular gauze bandage. The immobilization should rely on extemporized aid, fastening sleeve to the coat, supporting the arm by lapel pinned up, rifle, saber, bayonet splints.

Improved methods of transportation are necessary, owing to increased distance of dressing station and hospital from firing line.

At the field hospital, the hemostasis will be made permanent, abdominal and cranial cavity opened if necessary. Probing is discountenanced. If a bullet probe is to be used, it should be as nearly as possible the same caliber as the projectile. Craniectomy is indicated in every case of penetrating wound of the cranium. Laparotomy is advisable and feasible in penetrating wounds. Primary amputation is only justifiable by extensive injuries of the soft parts and fractures and joint wounds complicated by injury of large vessels and nerves. Primary resections for gunshot wounds of joints are obsolete. The main object will be to prevent complications by disinfection, removal of bullet, if in close proximity of joint, gauze drainage and immobilization.

The second paper, although read first, was "Asepsis in Military Service," by EDWARD BOECKMAN, Assistant Surgeon-General, N. G., Minn. He explained the best and most convenient methods of aseptic surgery, exhibiting his portable sterilizer and aseptic dressings.

The next paper, "Septic Bullets and Septic Powder," by CAPT. LOUIS LA GARDE, Assistant Surgeon U. S. Army. He related experiments in addition to those reported heretofore in Vol. LVI of the New York *Medical Journal*, showing that bullets can carry disease germs. He also demonstrated that of the various kinds of powder used, the black powder, being only consumed to the extent of 57 per cent., if fired close enough, might carry microörganisms, and may explain infections like tetanus and malignant edema in a fair proportion of the cases, while the Peyton smokeless powder contains a substance which inhibits the growth of bacteria of less resistant forms of germ life.

The next paper was on the

LOCATION AND DETECTION OF MISSILES,

by PROF. ROSWELL PARK of the University of Buffalo, late Brigade-Surgeon N. G., N. Y. After a historical review of the question, he announced as a main topic: 1, under what circumstances is a gunshot wound to be interfered with for the removal of missiles; and 2, how are said missiles to be treated or detected? The answer to the first query is that bullets are to be removed when they do actual harm or for cosmetic effects. The injury due to the presence of a bullet may be ascertained either by the rational or the mechanical method. The former embraces a study of the physical signs —pain, loss of function or sensation, from simple anesthesia to motor paralysis, ecchymoses, the so-called local stupor, the amount and character of hemorrhage.

The mechanical means embrace the various probes used for locating bullets. They should seldom be resorted to, owing to disturbance of blood clot, entrance of air or infection. If probing is resorted to the surgeon should be prepared to complete the work of removal at once. He then successively enumerated and explained the advantages of Nélaton's porcelain-head probe, Culbertson's meerschaum-head, Deneux's method, Bauden's tire-fonds, Loulaut's trocar, Baudry's tenaculum probe, Neudörfer's saw--teeth probe; then the various electric probes (Favre, Neudörfer, Rhumkorff, Luini, Sesemam, Liebreich, Maschek, Kovars, Longmore), likewise Fenger's endoscopic method. The latest instruments are those of Professor Hughes, the induction balance, which failed in President Garfield's case, and the Girdner telephonic probe. Professor Park illustrated the action of the latter on a chloroformed dog, into which for experiment's sake shot was introduced through a trocar.

A paper by CAPT. LA GARDE, "Experiments illustrating the Degree of Powder Burn," is valuable chiefly from a medico-legal standpoint, as it demonstrated that black powder causes powder burn at fifteen feet from a long barrel, from a short one at thirteen feet, at a somewhat lesser distance with the Walsrode and American wood smokeless powder, while it is practically absent in the Peyton powder, which is used in the new U. S. Krag-Jörgensen rifle.

GENERAL J. D. GRIFFITH, ex-Surgeon-General, N. G., Mo., read a paper on "Some of the Effects of the New Bullet, and how can a Soldier Protect himself?" The following are his conclusions, which generally agree with the observations of other experimenters: battles of the future will not be fought at artilleristic range; any soldier can protect himself by the use of his bayonet as a pick; the best protection is loose dry earth, the next best loose sand; at distances up to 1,000 yards the explosive quality of the missile is terrific; this explosive quality is most marked in soft tissues and cavities—the brain and lung tissues are terribly torn and the heart burst; when a viscus is grazed by a bullet, it is much mutilated; vessels are cut, not torn, hence death rate on the field will be very great (four killed to one wounded probably); tendons seem to be the only parts of the body turned aside by the bullet.

"The Value of Bromin in Military Surgery," was reviewed in the paper of M. O. TERRY, Surgeon-General N. G., N. Y. After an extended pharmacologic and historic review, he proceeded to submit his observations on this remedy and extolled its remarkable effects in dissecting wounds or cuts of all sorts by poisoned instruments, injuries made by a rusty nail, suppurative wounds, especially of joints with sinuses, and phlegmonous inflammations. His formula is 1 to 64 of bromin with bromid or iodid of potassium, which he uses either in full strength or diluted. He claimed particularly favorable results in phlegmonous erysipelas with 1 to 240, locally applied. In diphtheria he uses Testé's treatment of internal administration of 1 to 3 drops of 1 per cent. solution hourly. In preparation for operations a "weak" solution with carbonate or bicarbonate of soda. In all septic conditions 1 to 3 drops of the 1 to 64 solution every three to six hours.

LEWIS BALCH, Major and Surgeon, N. G., N. Y., read a paper on "Details regarding the Medical Service of the National Guard of the State of New York during the Buffalo Strikes of 1892," an eminently practical paper showing that the surgeons of the National Guard had been benefited by the examinations for the service, by the instruction received at Peekskill, and by the organizing talent of General Josiah Porter, and Surgeon-General Bryant. The sanitary service seems to have been well performed and considerable ingenuity shown in improvisation.

MAJOR C. CHASE WILEY, Major and Surgeon, 18th Reg. Inf., N. G., Pa., read a paper on "Field Hospital Service of the National Guard of Pennsylvania," at the twenty-eighth National Encampment of the Grand Army of the Republic, at Pittsburg, Pa., of which he was Medical Director. He equipped seventeen field hospitals and treated therein 763 soldiers and visitors, the total number of visitors being 250,000. Four hundred civilian surgeons attended this vast crowd. The territory covered by these arrangements was embraced in a circumference of fifty miles. Along the line of march, hospital tents were pitched at intervals of a third of a mile, with ambulances interspersed in the column.

The report of the Committee on Litter, nominated at the fourth annual session, was submitted by Medical Director A. L. Gihon, U. S. Navy. This committee was appointed to report a desirable form of military litter, and to solicit from medical officers plans and models. In response eleven different kinds of litters were submitted in addition to the six of the last session. The committee, whose members reside in Boston, New York and Washington, could not meet to submit the specimens to experimental trials, and therefore did not feel justified in discussing the subject in their report; they suggested that the Surgeons-General of the Army and Navy be requested to convene a joint board of medical officers of the two services for exhaustive tests, and that their decision be submitted to the Surgeons-General of the National Guard, in order that an apparatus for general use throughout the entire country may be selected. On motion, this suggestion was adopted.

An extract from the report of the committee on the organization of the American branch of the Red Cross Association, and its status in connection with the medical depart-

ment of the National Guard and U. S. Army, will show the views of this committee. In substance they report as follows: it would be unwise to place reliance on volunteer civilian aid in the important and dangerous service of the field ambulances. Enthusiasm will sustain individual volunteers in times of danger, but it can not be trusted to carry on the coöperative work of an ambulance service. Men trained and disciplined under the iron hand of military control are the only fit instruments for such work. In well disciplined military commands the potential energy of the company is infinitely stronger than the mere sum of the powers of its individual components. Military cohesion gives increased courage and coolness to the individual and keeps the command at its post of duty, notwithstanding exposures and losses that would demoralize men having no military training. A company of volunteer civilians is liable to become disintegrated by any unexpected event of an alarming or threatening character, and such events are of common occurrence on the field of battle. . . . . But although it is not likely that the American Red Cross Association will be of material service on future battle-fields, the history of the German Association and of our own Sanitary Commission shows that it may be of inestimable value in adding to the comfort of sick and wounded soldiers in hospitals removed from the actual theater of war. Besides, under the "American Amendment" the Association has grand opportunities for administering material relief in times of pestilence, famine, flood or other calamities, as the Michigan forest fires of 1881; the South Carolina earthquakes of 1886 and the tidal wave of 1893; the Texas drought of 1886; the cyclones and floods in Mississippi and Illinois.

A paper on the "Post Exchange from a Medical Standpoint" was prepared and read by MAJOR PHILIP F. HARVEY, Surgeon U. S. A., at the invitation of the Literary Committee. It excited universal interest and was an able, impassionate defense of one of the innovations in the Army for the purpose of decreasing drunkenness, increasing the comfort and contentment of the enlisted men and securing them a fair return for their money as against the extortions of the old tradership system. A careful historical review of the birth and growth of the exchange system under Government surveillance formed the first part of the paper. Testimony from a number of medical officers of the Army proving the beneficial effects on health and morality is quoted profusely, showing an almost entire disappearance of delirium tremens from the service and great reduction in minor crimes and delinquencies. Dr. Harvey in a long argument ably meets the objections of temperance advocates to the sale of light beer in the Exchange. There is an innate craving for a stimulant among all the nations of the earth. We deplore it and bend our energies to overcome it. We would, if we could, banish it with the wave of a magician's wand, but any nineteenth century child knows the impotence of such an expedient. If we can succeed in substituting a comparatively harmless beverage for one that inflames the passions, poisons the blood, and creates criminals and imbeciles, have we not partially solved the problem? It is a matter of common observation that the effects of beer upon the organism are very different from those of distilled liquors, both as they affect the intellectual faculties and the cellular elements. The lunch counter of the Exchange appears also to have its enemies, and Dr. Harvey goes to great length to show that there can be no possible harm in having the ration supplemented by a cheap lunch at the Exchange. He remarks upon the impediments to a perfect operation of the Exchange, viz., imperfect facilities and faulty arrangements, which with Government aid, which is due to an institution under its control, can be easily remedied. The destiny of the Post Exchange in the event of war is an interesting medico-military problem, which offers few difficulties to solve. He concludes by enumerating what we should try to realize in future from the Post Exchange.

COL. DALLAS BACHE, Assistant Surgeon-General U. S. A., read a paper on

### MEDICAL FIELD SERVICE.

In future wars, he said, we will not be able to count on the litter-bearers, nor can we think of carrying away the wounded *during* the battle; the evacuation of the field in twenty-four hours is all we can hope for. (Billroth, Bardeleben.) This will be due to the extension of the zone of effective infantry fire from 600 to 1,800 yards and that of the artillery to two and one-half miles with shrapnel. The percentage of wounded based on former wars can not be relied on; it will especially vary in certain parts of the field, and the medical service can neither be shifted *in extenso* nor provided for beforehand. He then gave statistics of the percentage of losses in the last few wars, which varied according to the particular conflict. While it averaged about 14 per cent., it rose in the 1st Minnesota at Gettysburg to 82 per cent., and at Gravelotte in the 3d Westphalian Regiment to 37 per cent.

The proportion of wounded to killed is generally accepted as 4 to 1, while if we accept the results of the Chilean war for the new weapons, it will be four killed to one wounded. The whole loss in battle will be increased and provision for 20 per cent. will not be excessive.

The work of gathering the wounded is assigned in all modern armies to the stretcher bearers of the line. This is a fundamental error. These men are trained as fighting soldiers and to divert them to another purpose is illogical and impracticable in the stress of an ordinary campaign. The training of these men will become unavailing too, as owing to the casualties of the campaign extensive changes will take place among them.

These company bearers are useful in garrison and encampment or after a serious battle, but should not be computed as the allowance of *personnel* for field service. Computing carefully everything bearing upon the question, distance of transport, field hospitals, reserves, casualties, the number of the medical service should be 4 per cent. of the force.

We are without a general scheme of arrangement and finished detail, outside of the management of our posts. The organization of our Hospital Corps is suited to a highly divisible administration, that of garrison or post service, but there is no compact cohesion—the men are not a disciplined body. The present division of line of assistance between the troops engaged and the division hospital is the collecting station, 800 to 1000 yards from the line. This is attended to by the company bearers at present, which, as mentioned above, would not be feasible at all times in actual war. This calls for a high degree of military training on the part of medical officers.

The next paper was by LIEUTENANT LINCOLN CHASE, Mass. Vol. Militia, on the "Measures for Prevention and Suppression of Dangerous Diseases in Garrison and in the Field." He showed that during the late wars, from the Mexican campaign to the present time, the proportion of deaths from wounds to those from disease were from 1 to 7 up to 1 to 2, according to the duration of campaigns. Theoretically, all diseases are preventable. The prevention should begin with systematic careful recruiting, especially avoiding acceptance of very young men. Young men from the cities are preferable, unless there is time for a year's training. An efficient sanitary service will, in the field, be a great preventative. Among the special measures of prevention, after enumerating those known to every trained medical officer, he mentions bacteriologic detection of diphtheria and tuberculosis in camp, which seems scarcely feasible.

I regret, that as I am about approaching the consideration of the next paper I find that I have almost reached the limit of the space allotted me for this report, as it is worthy of a full and careful synopsis. If I dispose of it in a shorter manner, it is done with great regret, as a wide dissemination of the unusual amount of information conveyed is most desirable.

The paper is the second one of COL. DALLAS BACHE on the

### SELECTION OF SITES AND THE CONSTRUCTION OF MILITARY POSTS IN RELATION TO PROPER SANITATION.

Three considerations govern the location of every post: military necessity, convenience, and health. The latter has been least consulted. Commercial necessity in construction of cities entails military necessity in the location of works for their protection. But in the construction of our Western posts absolute location in a particular site was not necessary and if sanitary advice had been consulted, loss of life and expensive removals could have been avoided. In the location of the large permanent posts throughout the country we have reason to expect certain sanitary interrogatories and careful consideration of the replies. There is a tendency to ignore the deeper exhibits of the soil, its air, water, temperature, although they have a highly probable relation to health. The regional climatic conditions, such as direction and velocity of the winds, the amount of rain and snows, the prevalence of fogs must be considered, as well as too much or too little shelter by hills. The subjects of ground air and ground respiration are important,—an aerial tide, rising and falling with the ground water, moving readily in all directions, loaded with carbon dioxid, the deadly gas, in some places up to 80 per cent. always under the control of the ground heat. The ground water is another important

sanitary factor. The composition of the soil will teach us its absorption, and the floor of the subsoil its disposition. The diurnal and annual curves, the former reaching four feet, the latter from fifty to one hundred, are of great importance. For example, we know that a soil rich in the products of vegetable decay, freely supplied with moisture by rainfall or from the ground water, especially if the latter is stagnant and superficial, and combined with these a soil temperature of about 65 degrees F. will produce malaria. Tuberculosis, cholera, typhoid fever, diarrhea, dysentery are more or less affected by the condition of the soil. This is not new, but not generally understood. As an example he cites one of the new permanent posts, the ground water on whose site is so superficial that when the foundations were laid the pumps had to be in constant use, while a short distance off a dry ridge could have been selected.

The consideration of the water supply and the disposition of liquid waste are also subjects for consideration. One of our newer posts obtains its water from two artesian wells, and its liquid waste flows upon a sewage farm owned by private parties—a precarious arrangement.

As to the construction of posts it includes quarters for the officers, the non-commissioned staff, barracks, hospital, guardhouse, storehouses, bakery, stables, repair shops, administration building, gymnasium, riding hall and crematory. There should be a fixed amount of floor area, cubic space and rates of air renewal, based in the everlasting change of the composition of our units, on a possible maximum. The bathrooms and closets should not be distributed among the companies, but should be central, under one management, removed from the barracks. The barracks should not be in one building, but separate pavilions.

The result of more careful attention to the sanitary condition of troops is that from 19 per cent. of mortality during the period of 1840–59 it has fallen to 4 per cent., not including war losses, with a corresponding ratio for discharges for disability.

The last paper read was by Major A. C. Girard, Surgeon U. S. A., on

DUST A SOURCE OF TYPHOID INFECTION,

a histological and clinical essay, based on his experience during the Chicago riots, when a part of the cavalry, who were camped on newmade and probably infected ground, had thirty cases of typhoid fever, while Chicago was healthy, and troops camped on other ground or in the city did not suffer. A whole regiment of infantry, camped on the same ground with the above cavalry, had no cases of typhoid. The water and food was the same for all the troops. The flies were equally bad through the whole camp. By exclusion he believes this to be dust infection, from dust groomed off the horses and deposited in the mouths of the men.

A large number of other papers were presented and read by title. An enumeration would not add to the value of this report.

A pleasing incident occurred on the second day of the meeting, when Major J. V. R. Hoff, Surgeon U.S.A., on behalf of the Association, in an eloquent speech presented to Surgeon-General N. Senn, N. G., Ill., a massive silver trophy in the form of a circular shield about eighteen inches in diameter, upon which was represented a ministering angel with the recumbent figure of a wounded soldier in bas-relief; in the center the red cross in red enamel; around the outer edge of the buckler in raised letters was the following inscription: "To Nicholas Senn, M.D., Ph.D., L.L.D., Surgeon-General N. G., Ill., the Association of Military Surgeons of the United States inscribes this testimonial, in grateful recognition of his services as its founder and first President, and in the advancement of military surgery. Fifth Annual Meeting. A.D., MDCCCXCV." General Senn responded with his usual eloquence.

## Medical Society of the State of Pennsylvania.

*Proceedings of the Forty-fifth Annual Meeting held at Chambersburg, Pa., May 21, 1895.*

[Special correspondence of the Journal.]

The President, Dr. John B. Roberts, of Philadelphia called the Society to order at 9 A.M. Prayer was offered by Rev. J. A. Crawford.

Hon. J. Stewart delivered an Address of Welcome.

The Secretary read his report, showing the marked improvement in the membership of the county societies, due to the efforts of the committee on the extension of membership.

The President briefly outlined his views as to the present management of the State Society, by which the details of business are left solely in the hands of the Committee of Arrangements. He urged the reference of the work of the society to the board of trustees. On motion, a committee of five was appointed to consider this idea and report next year. Committee: Drs. W. T. Bishop, of Dauphin; Alex Craig, Lancaster; W. H. Daly, of Allegheny; H. S. McConnell, of Beaver; and on motion Dr. Roberts was made the fifth member.

Report of the Treasurer showing a large surplus in the treasury, and of the Publication Committee, showing the publication of 2,700 copies of the transactions and the mode of their distribution was read. The recommendations of the latter were referred to the special committee of five.

The Scientific Committee reported their work, the adoption of seventy-five papers for the meeting.

Dr. A. Koenig, of Allegheny read the report of the Committee on Pharmacy, giving a concise account of a number of new remedies and their value.

Dr. Edward Jackson of Philadelphia, read the report of the delegation to the American Medical Association for the meetings of 1894 and 1895. This report congratulated the society upon the expected improvement in the Association Journal as a result of the efforts of this society.

Dr. C. L. Stevens Bradford read the report of the committee on extension of membership, showing the awakening of interest throughout the State in regard to county societies, a general effort to increase the membership, and a plan for the extension of university teaching by means of lectures, etc., to be given by prominent members, the traveling expenses, only, to be borne by each society. It was agreed that this work should be continued by a much smaller committee.

Dr. H. G. McCormick of Lycoming, read the report of the Board of Medical Examiners, showing the result of the examinations held thus far, etc.

The report of the Rush Monument Committee was read and the committee continued. Dr. H. F. Hansell of Philadelphia, read the report of the committee on contagious ophthalmia, and presented the bill now before the Legislature on this subject. A full discussion ensued, as many seemed to feel this might prove mischievous legislation. Finally the report was adopted. The action of the committee in presenting this bill was approved.

The report of the Legislative Committee relative to the efforts for a law to prevent the disclosing by physicians of communications from patients in the courts, which was defeated, and for the care of the insane, which thus far showed no results, was read and the committee continued.

The afternoon session was almost wholly given to the reading of scientific papers.

Dr. I. C. Gable of New York, read the "Address in Medicine." He gave a review of the present status of thought of the more important subjects which have excited general interest in the past year. The various morbid processes which are grouped under the class of infectious diseases received special consideration. He regarded the antitoxin blood serum treatment of diphtheria and other infections as the most important advance recently made in modern therapeutics. Modern chemistry and medical progress is rapidly enriching the materia medica in the new antiseptics and is making solid advances as to the true action of those medicines, at first employed empirically, which have long been used as disinfectants and specifics. We are largely indebted to bacteriologic science and laboratory technique for the clearer light which we possess to-day of the etiology of many diseases and the true mode of action of many medicines.

Dr. T. D. Dunn of West Chester, read a paper on "Sequelæ of Typhoid Fever." Erythema nodosum occurred in three cases; arterial and venous thrombosis in two cases; abscesses and pariotitis in two, nervous affections in five cases. These complications were given in full with their treatment.

Vice-President R. Armstrong of Clinton, in the chair, the President Dr. J. B. Roberts, read a paper on "Treatment of Malignant Tumors with the Toxins of Erysipelas." An account was given of the reasoning by which Coley was led to attempt the cure of inoperable malignant tumors by the toxins of erysipelas. The method of preparing the toxins and the reasons for combining them with the toxins of bacillus prodigiosus were given; the author reported three cases in which he used this method with success. He also referred to the successful cases reported by Coley and others. Stress was laid upon the fact that the only proved cure of malig-

nant disease is early and radical extirpation. The toxins may have to be used in cases that have postponed operation too long, or after the operation, in the hope that recurrence may be prevented. The hypodermic injections of the toxins are liable to be followed by depression of the patient's strength, but are justifiable because they hold out the only hope of success in cases not suitable for operation. Sarcomatous tumors were said to be more amenable to this treatment than carcinomas.

DR. JAS. TYSON of Philadelphia, read a paper on "Typhoid Fever and the Cold Bath," and exhibited an apparatus for the purpose, which was readily used with but little disturbance to the patient.

DR. J. M. BALDY of Philadelphia, read a paper on the "Prophylaxis of Pelvic Inflammations in Women." He alluded to the number of ailments which arise from these. The main, practically the only cause, the gonorrheal infections. These spread over the whole mucous surface, prevent the occurrence of the pelvic infection, and attack the acute endometritis early before it has passed up. The danger of the infection is lessened and the power to create damage in the tubal cavities is diminished. In all cases of acute gonorrhea which have extended into the uterus, the patient must be looked upon as suffering from an acute endometritis. In acute puerperal cases the germs first attack the free blood clots and accumulated exudates in the cavity of the uterus. Here the free use of the intra-uterine irrigator will flush out the infected products and end the trouble. If the patient is allowed to go for twenty-four hours, in all probability the infection has passed beyond the reach of douching. Then we must follow the germs to their hiding places. The curette now comes in and must be used thoroughly. He described the method of operating.

DR. J. M. BATTEN of Allegheny, read a paper on "Tuberculosis." He showed by clinical observation that the tuberculosis habit is visited to the third and fourth generations. That as far as it came under his observation it is not contagious. At least only slightly among those who have not inherited the tuberculous diathesis. He spoke of the cell theory of tuberculosis and the old theory of heredity, and closed by stating that the proper plan to prevent the disease is to educate the young people how they ought to select wives and husbands in order to have healthy posterity.

DR. W. S. STEWART of Philadelphia, gave his experience in the treatment of diphtheria with the subsulphate of iron. He detailed at some length his cases, insisting upon this as the plan of treatment which offered the best prospect of safety.

DR. J. W. ROOP of Harrisburg, read a paper on "Acute and Chronic Cystitis," and its successful treatment with the bichromate of potassium. He alluded to the causation by neglected gonorrhea, the unskillful use of the catheter, sepsis, etc. Remove the cause, rest in bed, keep the urine neutral, and diluted; locally washing out the bladder, then follow with astringents, etc. Boracic acid is best, hydrogen dioxid and the potassium permanganate are useful. The bichromate of potassium had in his hands been of great value, and he did not know of its use by others.

DR. H. R. WHARTON of Philadelphia, read a paper on "Treatment of Nævus." He recommended the application of nitric acid to the capillary nævus, or ethylate of sodium, but preferred the use of the nitric acid in this form of nævus. In the treatment of port wine mark, he recommended multiple scarification or electrolysis. In the treatment of venous nævus he preferred excision in favorable cases, as a treatment which was most thorough and left the least deformity. In cases unfavorable for excision by reason of their size and situation, he recommended the use of the ligature or subcutaneous ligation. He called attention to the importance of early treatment in all cases of nævus, on account of the rapidity of growth in this form of vascular tumor, and insisted upon the importance of watching these growths carefully and if they increased in size he considered it very unwise to delay the prompt resort to some of the various forms of surgical treatment.

DR. E. LAPLACE of Philadelphia, read a paper on one hundred and twenty-five cases of hernia in which the radical cure was performed. This was a detail of his cases, showing the best method for the relief of this trouble.

DR. H. S. ANDERS of Philadelphia, read a paper on

THE PRESENT STATUS OF THE SANITARY MOVEMENT FOR THE ADOPTION OF THE INDIVIDUAL COMMUNION CUP.

Attention is directed, at the outset, to the fact that while the possible, even the probable dangers of the communion cup were recognized, privately and several times publicly, by the members of the medical profession, it has been but little more than one year since the first use was made of the individual communion cup by any church. This method of administering the communion wine is now believed to be the only sanitary, safe and entirely practical and successful procedure. Besides it has the sanction of scriptural precedent, and of ministerial argument and recommendation. One year's history, carefully scanned, reveals marked progress, not only in the awakening of interest and some general study of the grounds for the innovation; but also in the ready adoption of the individual cup in a rapidly growing number of churches of most Protestant denominations. It is hardly necessary before a body of intelligent and wide-awake physicians, to argue in abstract still less in detail, in favor of the change. The writer's paper, "Prophylaxis in Churches needed by the adoption of Individual Communion or Chalice Cups," read before the Philadelphia County Medical Society Sept. 26, 1894, contains the historical, rational (inductive and deductive) and practical argument for the abolition of the common and the substitution of the individual communion cup. Since the first bacteriologic investigation by Dr. Chas. Forbes (U.S.M.-H. S.) of Rochetter, N. Y., of the common cup's rim and the dregs after a communion service, and the writer's studies two months later, so many churches have obtained and used the individual cup method, that it is difficult to estimate their number.

The first church in Christendom, so far as known, to adopt this modification was the North Baptist Church of Rochester, N. Y., at the communion service held May 6, 1894. Within one month thereafter, fourteen churches in that city had made the change, and six more had signified their intention to do so. These included the Baptist, Presbyterian and Methodist denominations.

After the writer's investigations, the Fourth Baptist Church adopted and first used the individual communion cup in Philadelphia. One Presbyterian, one Methodist and one Reformed Church have followed. The Baptist, Presbyterian, and Reformed pastors are agitating the matter in their respective congregations and associations. In New York City, in Brooklyn, in Pennsylvania, Massachusetts, New Hampshire, Ohio, Illinois, Missouri, Virginia, Georgia, and California, and perhaps other States the movement is progressing after calm, intelligent and reverential thought. The State Medical Society might well sanction the wholesome sanitary reform by stamping it with its official approval and adopting suitable resolutions to be forwarded to the county societies, health boards, and church ministerial associations.

DR. J. M. BARTON, Surgeon to the Jefferson College Hospital and the Philadelphia Hospital read a paper on the

DIAGNOSIS AND TREATMENT OF ACUTE INTESTINAL OBSTRUCTION.

Within the last few years the public are ready to accept surgical aid with much less deliberation than formerly, but they still deliberate too long in cases of acute intestinal obstruction. Until recently the chance to operate at all, in such cases was extremely rare and unless our successes are greater than they have been there will be but little to encourage the sufferer, in future, to submit to the knife. The mortality is enormous and almost entirely due to delay before operating. If it were done early, while the patient is yet in good condition but few would perish from an abdominal section, lasting twenty minutes, and almost bloodless. Both in hospital and in private the patient is not unusually in dying condition when the operation is agreed to. The writer narrated in full one case where the patient was sent 250 miles, to him on the eighth day of the disease and the fifth of fecal vomiting; the collapse was so great that though the operation lasted only ten minutes he perished a few hours later; if the operation had been performed five days sooner, when fecal vomiting appeared, he would have recovered.

Acute obstruction is divided into four forms:

1. Strangulation by bands or through apertures; this form is most frequent in young adults with a history of previous peritonitis. Vomiting begins early and is generally stercoraceous, constipation is continuous and absolute, tenesmus is absent, there is great prostration. Such cases require immediate operation as death generally occurs by the fifth day.

2. Volvulus. Here the bowel is so tightly twisted as to at once obstruct the nervous and vasculur supply and produce immediate prostration. It occurs in males over 40 who have suffered from constipation. Local tenderness occurs early, vomiting appears late and is rarely feculent; constipation is absolute.

3. Intussusception occurs mostly in children. A tender

tumor can be felt in the abdomen and occasionally in the rectum. Absolute constipation is rare; diarrhea with blood is not uncommon.

It is not well to spend valuable time in attempting to determine the character of the obstruction; it is enough to know with certainty that the intestine is obstructed and the obstruction is not due to fecal impaction.

*Diagnosis of Acute Obstruction.*—An individual, probably in perfect health, is suddenly seized with severe abdominal pain which may remit or distinctly intermit. The abdomen is not tender at first, copious and severe vomiting appear early, the matters vomited are first food, then bile, then coffee-ground looking material and lastly they are stercoraceous. Before the coffee-ground vomit appears, mouthfuls of reddish water are often brought up without nausea or retching. Except in cases of intussusception the constipation is absolute, not even wind passing. There is some abdominal distension and marked shock.

Acute obstruction must be differentiated from

1. Ordinary colic from indigestion. This is preceded by signs of indigestion; gaseous eructations accompany the vomiting, gas is freely passed by the bowel, diarrhea usually accompanies or terminates the attack; the vomiting never becomes coffee-ground or fecal.

2. In hepatic colic the pain and tenderness is at the margin of the right ribs. The pain is intense with complete intermissions, the vomiting is never feculent, there is no constipation, gas passes freely, there is no abdominal distension, light jaundice may be present and occasionally chills and fever.

3. In renal colic the pain begins over one or the other kidney, then passes down the ureter to the testicles and thighs. The urine is scanty and may contain blood; it is passed frequently and with pain; there is no constipation and no abdominal distension.

4. In appendicitis the vomiting ceases in a few hours and never becomes stercoraceous, the pain increases and is limited to the right iliac fossa. There is frequently a distinct mass, and always an exquisitely tender spot to be found in the same region; the temperature is usually elevated and constipation is unusual.

5. In general peritonitis a history of injury or preceding disease can usually be found, the bowels act freely and wind passes readily in the early stages of the disease. The vomiting is rarely violent.

Fecal impaction is most common in adult females with mental troubles; there is a history of long-continued and severe constipation, vomiting appears late, is scanty and rarely feculent. The retained feces can be felt in the colon.

*Treatment.*—The medical treatment consists in washing out the stomach, kneading the abdomen, inverting the patient and giving injections of air, gas or water. It is rarely successful, exhausts the patient, wastes valuable time and occasionally ruptures the intestine. In but few of the cases I have examined could any of these methods have produced the slightest effect. If these methods are not immediately successful, the abdomen should be at once opened and under no circumstances should operation be delayed after coffee-ground vomiting has appeared. When obstruction is suspected, all preparations should be at once made for the operation, so that the moment the diagnosis is unmistakable there may be no delay whatever; it ought to be usually done within twenty-four hours of the appearance of the symptoms. If the location of the obstruction is known the most convenient incision is made, if not known a median incision, just below the umbilicus and large enough to admit the hand is employed. If the seat of the trouble be not at once evident, the head of the colon is sought; if it be distended the obstruction is in the large intestine and is readily located. If the head of the colon be not distended, the collapsed ilium is rapidly passed through the fingers until the seat of the difficulty is arrived at. If the obstruction is due to a band it should be removed close to its attachments so that it may give no further trouble. When it is due to an adherent appendix or to Merkel's diverticulum they should be entirely removed. In strangulation through slits or apertures, it is well to close the abnormal opening after the bowel has been reduced. If the strangulated gut be gangrenous it should be removed and an artificial anus made. An anastomosis operation can be performed later if the patient survive. The patient in acute obstruction is never in a condition to have the shortest anastomosis operation performed. A volvulus must be untwisted and an intussusception reduced. If reduction is impossible, an artificial anus must be made above the obstruction. If, after we remove an obstruction, no matter what its nature, the bowel be much over-distended, it must not be left in this condition, but must be emptied even if we have to puncture it for the purpose or establish an artificial anus. If the patient is in extreme collapse, with a rigid distended abdomen, operation should not be refused. No anesthetic should be given as it is apt to provoke fatal fecal vomiting. Heat and strychnia should be freely used. A short median incision just below the umbilicus should be made, just large enough to permit a finger to enter and bring out the first distended loop of bowel that presents itself; an artificial anus should be made and opened at once.

If the patient is to be sent to a city hospital, wash out the stomach and give stimulants, use strychnia hypodermically, put the patient on a stretcher and surround him with artificial heat. Send short plain history with him. Telegraph surgeon so that the ambulance may meet the train and there may be no delay when the patient reaches the hospital.

### Evening Session.

The President called the society to order at 8 o'clock.

Dr. H. H. Longsdorf, of Carlisle, read the Address on Hygiene. She entitled it

### THE MORAL FACTOR IN HYGIENE.

The science of hygiene is under a great onward impulse through the discoveries and researches in bacteriology. The theories based upon these researches have seemed to make the health problem an easy one to solve, but in spite of these tangible results the retrospect and outlook are not reassuring. Many questions on sanitary lines remain unsettled and there is a growing fear that the race product is on a lower average than formerly, that the vigor and manhood which constitutes the real wealth of the nation is declining.

The causes for this must be looked for in the increase of the dissolute and defective classes and the want of restraint put upon their disease-developing power.

Hygiene in its ultimate meaning is *race development*, and from this standpoint it must be considered among the many humanitarian and sociological questions that perplex the thinker and threaten the integrity of the body politic. If prevention is the keynote of the medical thought of the day, it is the height of wisdom to pay heed to the sources of moral contamination. Overcrowding in cities, child labor, unnatural and unremitting toil by the mothers, are some of the most potential of these causes, and they appeal to the hygienist and to the legislator on the basis of race deterioration and loss to the State.

The absolutely dissolute should be isolated and their labor made productive; 1, to prevent the transmission of their pernicious qualities; 2, to relieve the State of the burden of their maintenance in asylums and reformatories.

Dr. G. Betton Massey, of Philadelphia, read a paper on

### RECENT EXPERIENCE IN THE ELECTRICAL TREATMENT OF FIBROID TUMORS AND CATARRHAL AFFECTIONS OF THE UTERINE TRACT.

In the treatment of two classes of fibroid tumors there is no conflict between the claims of electricity and of the knife. There are cases in which electricity in expert hands can give 100 per cent. of practical cures, not necessarily cosmetic cures, but completely satisfactory, in the comfort and well being of the patient. There are also cases in which electricity can only do harm, and in which ablative surgery is not only wise but imperative. In a third class true conflict occurs, and I may specify this class as made up of large tumors causing much deformity, which by reason of their situation or constitution require prolonged efforts for electrical absorption. If the deformity is great it becomes a question for the patient to decide whether the danger of an operation should not be faced. Operations are frequently performed on small tumors, in which a complete and permanent cure can be assured by electricity. Hemorrhagic tumors of all sizes should be placed under treatment of this kind, the author never having had a failure in curing a hemorrhage or pain and reducing the size. Of non-hemorrhagic large tumors, reduction or disappearance is most certain in instances of symmetrically developed interstitial growths. The class in which electricity is not indicated embraces degenerating tumors, quickly growing tumors, and all tumors associated with purulent inflammation of the appendages. One of the most important services of electrotherapeutics to gynecology is the prevention and cure of tubo-ovarian disease. This affection is dependent upon a uterine catarrh, hence the cure of the endometritis is in many cases the prevention of the former. The positive pole is indicated within the uterus and the negative within the vagina at different applications. A large number of young girls have thus been restored to full womanly health in

spite of the fact that some of them had been advised to submit to an unsexing operation.

DR. C. P. NOBLE, of Philadelphia, read a paper on "Movable Kidney." He gave at length the mode of diagnosis, etc. The trouble seemed much more common than he had apprehended when he came to review the number of cases which had come to his notice.

DR. BENJAMIN LEE, of Philadelphia, read a paper on

THE NECESSITY FOR A STATE SYSTEM OF REGISTRATION OF VITAL STATISTICS IN PENNSYLVANIA.

It is a matter of profound astonishment to intelligent foreigners visiting this State, and even to residents of neighboring States, that the great and venerable commonwealth of Pennsylvania, while having nominally a Central Bureau of Vital Statistics and a State Superintendent of Vital Statistics, is almost alone among civilized governments in failure to furnish the machinery by which such a system can be efficiently maintained. Apart from the general advantage of such a system and the question of State pride, there is the fact that the demand for its establishment is widespread, and constantly reiterated by a large and intelligent class of our citizens for all kinds of purposes. Inquiries for such information come from professional men, manufacturers, corporations, libraries, literary societies, the various departments of municipal administration and from officials of all kinds. It may safely be said that vital statistics form the basis of all sanitary work. Their registration and tabulation are to the sanitary officer, and therefore to the State, what "taking account of stock" is to the merchant.

1. In order that municipalities may understand the necessity for sanitary work it is not enough to quote to them the statistics of foreign countries. They need to have the subject brought directly home to them, by showing that a neighboring town or village has exactly so many fewer deaths, or so many fewer hundred cases of sickness each year than take place within its own limits, from the fact that the neighboring town has spent more money to obtain pure water by an improved water supply, pure air by abating nuisances, and pure soil by a proper system of sewerage. In Massachusetts and nearly all the New England States, in New York, Michigan, Illinois and many other States of the Union, such systems have been in active operation for a considerable period, and the records have proved of the greatest value, in the direction just mentioned.

2. Registration of vital statistics has an essential use in preventing the concealment of crime. The statement will scarcely be credited that in this State outside of large cities and a certain number of incorporated boroughs, human beings may die and be put under the ground without official record of any kind of the circumstances. The death of a blooded horse or an Alderney bull is carefully registered in the Herd Book, but the man dies and leaves no trace, as far as any record for future reference is concerned. Is it any wonder that grave-yard insurance has flourished in Pennsylvania? In a civilized community no one should ever be buried without a burial certificate issued by authority of law, and a statement of the cause of death attested by a physician.

3. Properly recorded vital statistics ensure the means of proof of personal identity, of right to property, and of substantiating just claims for the pensions for widows and orphans of those who have died in the defense of their country.

4. A ready means is thus afforded of the proof of age for the prevention of election and other frauds.

5. But outside of these conditions, weighty as they are, when we regard the conditions of a State rather than a city, we have to consider those of the growth of the commonwealth and the relative increase of population. It is desirable to know how many children are born each year in the State, whether they are of native or of foreign parentage, and what the relation of the number of births is to the number of deaths, and thus be able to appreciate what is the natural movement of population, independently of increment by immigration.

6. The writer is convinced that there is no State in the Union with a lower general death rate than that of Pennsylvania, but he has no means of showing it to be so. As indicating the value which is placed upon work of this kind in other States, it may be mentioned that New York employs from six to eight clerks on Vital Statistics alone, whose salaries aggregate $8,000; Michigan employs seven with salaries amounting to $7,000; Massachusetts five clerks and an editor, with salaries amounting to $4,220; and the little State of Rhode Island, whose entire population is less than that of "Greater Pittsburg," one clerk at a salary of $500. There is a bill now before the Legislature of Pennsylvania providing for the appointment of a clerk in the Bureau of Vital Statistics at Harrisburg, and calling for the very modest appropriation of $5,000 to inaugurate and carry on this important work. It is hoped that this society will put on record an expression of its approval of this effort to elevate Pennsylvania to the plane of other civilized commonwealths.

DR. T. S. CULLEN, of Baltimore, Md., having been elected a member by invitation read a paper on "Carcinoma Uteri," illustrating it by an admirably prepared diagram of the uterus.

DR. G. S. HULL, of Chambersburg, read a paper entitled "Ten Minutes in Electricity." He alluded to the electrolytic effect in removing hair; the effect is obtained from eight to ten LeClanche cells connected in series. It is cheap, free from odor, and easily kept in order. It may also be used to remove warts, in uterine growths, etc. Here, is need for the skillful only to tread. Electric humbugs are abundant, as the electric inhaler, electric head band, electric hair brush, etc. He alluded to argon which he believed the polarizer causes the skin to absorb, not oxygen as thought by many. To lie down on a downy couch when overworked or ill, and by a conductor running from an ankle to a polarizer, and with another cord leading from the instrument with its imperishable material to the moist earth or a cake of ice, to cease even from the labor of breathing, and have this perpetual source-of-energy machine force argon into one's blood and give new life to every part—"this were a consummation devoutly to be wished."

Adjourned till Wednesday.

SECOND DAY.

The society resumed its sessions at 9 A.M.

The Nominating Committee was announced and retired to prepare its report.

DR. C. L. STEVENS, of Athens, read the Address in Surgery. He urged the use of anesthesia as necessary for the proper doing of the work of the surgeon. Next the need of care in diagnosis, the careful attention to details, to rest in pain, to the need of massage and motion early in joint injuries, to the keeping of limbs in proper position during inflammation, lest we have ankylosis, contraction of muscles, etc. Examine with great care in all cases of pain, in the bowel lest we overlook a strangulated hernia; in all pain and swelling of joints, lest we have pus, when we are only thinking of rheumatism. Regard with much suspicion any breast trouble lest there be cancer and it get beyond the reach of our skill. He spoke of the needed care as to asepsis, and gave at some length the proper method of assuring this.

DR. F. LE MOYNE of Pittsburg, read a paper on the

NECESSITY FOR THE ADVERTISEMENT AND ISOLATION OF CERTAIN INFECTIOUS AND CONTAGIOUS DISEASES.

He urged upon the profession the importance of this idea especially in scarlatina and diphtheria. Such affections are conspicuous causes of suffering and mortality and by proper precautions they are to a great extent preventable. Existing laws in our State commit the strange inconsistency of exacting precautions and enforcing restrictions in regard to smallpox, which is to a great extent under control by vaccination, while scarlatina and diphtheria to which a much larger proportion of the population are susceptible, are not subject to proper legal regulations and have almost unlimited opportunities for dissemination. The members of the medical profession are the natural and acknowledged guardians of the health of the people, and it is incumbent upon them to lead the public mind safely in that direction by emphasizing the fact that every case of scarlatina or diphtheria not carefully isolated and plainly placarded is a shameful menace to the surrounding population.

DR. J. J. BUCHANAN of Pittsburg, read a paper entitled,

RUPTURE OF THE TENDON OF THE QUADRICEPS FEMORIS,

giving a summary of the literature of this comparatively rare accident, together with the history of a case in which he had opened the knee joint, drilled the patella and sutured the tendon in place. The result was all that could be desired, a strong and useful joint. He quoted the statistics of the injury as compiled by Maydl of Vienna, and Bull of New York, and added cases of his own collection which had been reported since the papers were published, as well as a few which had been overlooked by these authors. The total number of cases given is 120. Suture of the tendon was performed in ten cases, as follows: 1. Lister (1878) in Roxburgh's

case, by a complicated plastic operation repaired an old rupture with buried catgut sutures with a good result.

2. Luning (1880) sutured the tendon with catgut as a part of the repair of an open wound, made by a butcher's cleaver; result a freely movable joint.

3. McBurney (1885) sutured the tendon with catgut and a wire retention stitch; result perfect.

4. Wilkin (1887) sutured the tendon with silkworm gut as a part of the repair of an incised wound of the thigh, with good function and almost perfect flexion.

5. Kaufman (1888) sutured the tendon to the muscle from which it had been torn; complete recovery.

6. Midelfast (1888) operated on a case in which the patella was found driven between the femur and tibia. He sutured the tendon and secured primary union.

7. Bull (1888) sutured the tendon with catgut, with good result.

8. Chaput (1893) sutured the tendon.

9. Buchanan (1894) drilled the patella and sutured the tendon to it with silkworm gut, perfect result. Considering the fact that without operation, an imperfect result has occurred in about half of all cases, the author considers the operative procedure one to be recommended.

Dr. Jos. E. Willetts of Pittsburg, read a paper on "Intra-Tympanic Disease."

Dr. A. P. Hull of Montgomery, read a paper on "Treatment of Typhoid Fever by Guaiacol." This was a report of thirty-two cases treated during September, October, November, December, 1894, and January, February, 1895. The first eleven with two deaths, and the last twenty-one with guaiacol internally continuously, and externally when necessary to lower the temperature, with no death; an average duration of fever of nineteen days, with the grave symptoms modified and a promptness in getting up after the fever had left them, closing with some reasons why the antiseptic is the rational treatment for typhoid fever.

Dr. L. J. Lauterbach of Philadelphia, presented a paper on "Deaf Mutes—Can anything be done by Treatment?"

Dr. Murray G Motter of Lancaster read a paper on the "Clinical Study of Typhoid Fever."

Three cases; three types; a threefold purpose. These cases have been selected because of the following conditions presented:

*Case 1.*—*a*, differential diagnosis frequently mistaken; *b*, the type and duration of the pathologic process, and the youthful patient's remarkable powers of resistance—both to the disease and to the misapplied treatment; *c*, the complete and under all the circumstances, rapid recovery, under a strictly *noli-me-tangere* régime.

*Case 2.*—Three initial complications: *a*, pleuritis; *b*, abortion; *c*, acute nephritis.

*Case 3.*—*a*, the severity of the initial symptoms; *b*, the grave cardiac complications; *c*, rapid subsidence of the fever, under hydrotherapy (Brandt).

The object of this contribution is to demonstrate:

1. The dangerous, often fatalfal libility of "pathognomonic symptoms," so-called.

2. The folly of *any* absolute, invariable, "routine" treatment.

3. The urgent necessity, *a*, of recognizing each case as a law unto itself; and *b*, for treating—*not* the disease nor the symptoms, *per se*, but—*the patient*.

Dr. W. T. W. Dickeson, of Media, read a paper on "Microbes and Moulds." The Doctor gave a brief account of the deleterious effects of these organisms on animal and plant life; where and in what substances they are found—water, milk, animal and vegetable food, etc. The common nourishment of bacterial growths, spores of dangerous diseases. The susceptibility of individuals of low vitality to succumb to germ diseases and their inability to throw them off were next tersely given. Then he alluded to epidemics, septic poisoning, moulds and fungi that attack fruit, grain and flowers. Ptomaines and serums of cholera, tuberculosis, erysipelas cocci and the antitoxin of diphtheria concluded this highly interesting paper.

Dr. L. H. Adler, of Philadelphia, presented an article on "Treatment of Fistula-in-Ano by Lange's Method or Immediate Suture in the Tract." In no instance was there need to regret the operation. He considered it of decided advantage. Even if primary union is not obtained the patient will be in the same position as if no attempt had been made, whereas if healing ensues the gain is a very considerable one.

On motion of Dr. L. H. Taylor, of Wilkes-Barre, it was

*Resolved*, That the Medical Society of the State of Pennsylvania considers the registration of births, marriages and deaths at the central bureau of the Capitol of the State a matter of the utmost importance in the interests of medical science, of public health, of protection to human life; therefore

*Resolved*, That the Society respectfully memorializes the honorable the Senate and the House of Representatives of Pennsylvania in favor of the passage of the bills introduced at the present session, to authorize the State Board of Health to employ a clerk for the registration of vital statistics, to confer the powers of a board of health on the school board of each township, and so to increase the appropriation for the board as to enable it to efficiently discharge this important duty as assigned it by law.

*Resolved*, That copies of the preceding resolutions, signed by the President and Secretary, be at once transmitted to the honorable Wesley C. Thomas, President *pro tempore* of the Senate and the honorable Henry F. Walton, Speaker of the House of Representatives at Harrisburg.

At the afternoon session the Committee on Nominations reported as follows:

President, W. S. Foster, Pittsburg.

Vice-Presidents, John Montgomery, Chambersburg; A. P. Hull, Montgomery; T. H. Sharpneck, Nineveh; A. B. Brumbaugh, Huntingdon.

Secretary, William B. Atkinson, Philadelphia.

Assistant Secretary, C. L. Stevens, Athens; Treasurer, G. B. Dunmire, Philadelphia. In addition, censors, delegates, etc. Next place of meeting, Harrisburg.

The report was adopted.

(*To be continued.*)

## Illinois State Medical Society.

*Abstract of the Proceedings of the Forty-fifth Annual Meeting, held at Springfield, May 21, 22, 23, 1895.*

[Special correspondence of the Journal.]

(*Concluded from page 856.*)

In the evening of the first day the President, Dr. Daniel R. Brower, delivered the Presidential Address, selecting for his subject

SOME ABNORMALITIES OF PHYSICAL CONFORMATION OBSERVED IN CRIMINALS, WITH CAUSATIVE AND CORRECTIVE CONSIDERATIONS, ILLUSTRATED BY THE STEREOPTICON.

The speaker prefaced his remarks by saying that we were living in a marvelous age, and that the closing hours of the nineteenth century were full of wonders. It is not a hundred years ago since the great Pinel established beyond the possibility of controversy the fact that insanity is a disease. Prior to that time lunatics were regarded as either possessed of the devil or as victims of divine wrath. As a result of the rapid progress that has been made from time to time there are now scattered throughout this and other civilized countries hundreds of hospitals for the treatment of the insane, and no one to-day considers it other than a disease, subject to the same laws and governed by the same principles as any other affection. Pictures of noted criminals were then projected upon the canvas, their histories detailed, and the peculiar conformations of the head pointed out. Dr. Brower said there was a great difference proportionately in the size of the brain of a criminal as compared with the brain of a normal individual, and to illustrate this point, a picture was shown from Lombroso's book on "Criminal Woman," which conclusively showed that the average size of the criminal brain is very much smaller. Dr. Brower closed by directing attention to the question of marriage, saying that we should have added to the marriage license certain requirements certified to by some responsible practitioner of medicine, giving evidence that both parties are in good health; that they are not criminals, drunkards or paupers, and that their grandparents were not insane, epileptic, suicidal, or in any way degenerates. With such requirements we would see crime, pauperism, and insanity on the decrease, and would some day witness a race of men and women rising up capable of achievements of which the world has never dreamed.

### Section II.

*Surgery, Surgical Specialties and Obstetrics.*

*Chairman*, Dr. Wm. E. Guthrie, Bloomington.
*Secretary*, Dr. J. A. Baughman, Neoga.

Section called to order by the Chairman.

ADDRESS IN SURGERY.

The Address in Surgery of this Section was delivered by Dr. Duncan Eve, of Nashville, Tenn. He said surgery recognizes its true disciples everywhere. It confesses its obli-

gations wherever benefit is conferred. It owes much to the South and West. It gratefully remembers McDowell as the father of ovariotomy. It pays willing tribute to Crawford Long as the discoverer of ether as an anesthetic. It gladly retains the name of Brasher, who triumphantly performed hip-joint amputation. It, with much pleasure points to Gilmore, as the first to successfully remove a kidney. It recalls with pleasure Smythe's successful ligation of the innominate artery. And to Dudley, Pope, Hodgen, Sims, Wyeth, and many others, refers with equal delight for their many and original procedures. There are two names in this State that surgery honors—Nicholas Senn and J. B. Murphy. For the good of humanity, progress in military surgery has been retarded by an epidemic of peace. It is the duty, however, of the military surgeon "in time of peace to prepare for war." Dr. Eve agrees with Senn that the great factors which will modify surgery on future battle-fields will be: 1, prevention of wound injection; 2, conservative treatment of gunshot injuries of the extremities; 3, prompt, direct operative interference in the treatment of penetrating wounds of large cavities. To this end, we find new and important devices, as in the construction of field hospitals, litter carriers, operating tables, dressing cases, travois, etc. Railroad surgery has established a province of its own. Here is tested the utmost endurance and resistance of which vital force is capable; recovery often attained in the midst of despair; fatal results where injuries appear light and hope is buoyant. Here conservatism can hold complete sway. Within the last few years the treatment of railway injuries bas in this respect improved so much that the results mark this era as one of the brightest in the history of the surgical world. On account of our increased knowledge of cerebral topography, intracranial surgery has made great progress. Cysts, or abscesses of the brain can now be diagnosed by the use of a fine aspirating needle, introduced through an opening made in the skull by a watchmaker's drill. The different sinuses can be entered, foreign bodies removed and hemorrhage controlled by means hitherto unknown. We can not fail to observe with much satisfaction the wonderful progress that has been made in abdominal surgery. Of the many operations for intestinal anastomosis, Murphy's button deserves special mention. Sufficient time has elapsed since its introduction to place its use on a sound basis. Within the last year we are led to believe that inguinal colotomy has to a great extent superseded the lumbar operation because of the ease with which it can be accomplished; because a better spur can be obtained in the inguinal region, and because of the patient's more rapid recovery, from the operation.

The dreamy speculations of the past have given way to the realities of fact, and the universe is throbbing with the pulse of progress in every department of thought. We are in the dawn of a new era—an era charged with results tremendous in their issues and their influence upon humanity at large. Who can divine what will be the glory of its noon-day splendor? Indeed, it may be said at this moment, having concluded the journey through the wilderness of the past, we stand upon the mountain of view and gaze into the promised land of the future. Our hearts swell with rapturous emotion, while our minds entranced contemplate the vision that rises before us with all the charm of perfect enchantment.

"For I doubt not through the ages one increasing purpose runs,
And the thoughts of men are widened with the process of the suns."

DR. W. H. SPARLING, of Moweaqua, read a paper entitled

FETAL HYDROCEPHALUS.

The author reported two cases. The first patient was the mother of eight children, all of whom were living and healthy. Having attended her during two previous confinements and knowing her to be unusually expeditious, he did not apprehend any difficulty in her case. The child lived for about half an hour from the time of its birth. The mother made an excellent recovery.

The next case occurred in a woman, 25 years of age, who had been in labor for about twelve hours. This was her fourth confinement in less than four years. All of her former labors had been normal.

The cases are both interesting on account of the rarity of the malformation and the difficulty usually attending labors so complicated. La Chapelle's statistics show only 15 cases of fetal hydrocephalus out of 43,545 labors; but Merriman gives 1 in 900.

The question as to what can cause this disease during fetal life would be an interesting one. Tubercular meningitis being out of the question, the most reasonable supposition would be that it is an unnatural secretion of cerebro-spinal fluid, which pressing upon the bony walls of the cranial vault arrests their development, this affording ample scope, under the more yielding soft coverings of the head for the formation of a tumor of very large size. The deformity is quite frequently accompanied by spina bifida, as in the author's second case, which might indicate a want of proper development in the bony walls of the cranium and spinal column as encouraging the excessive secretion, and so being the original cause. The head may assume an immense size, cases being on record where it measured twenty-five to thirty inches in circumference.

DR. W. C. BOWERS, of LaPlace, read a paper entitled

OBSERVATIONS ON SOME FORMS OF PUERPERAL DISTURBANCES, WITH CASES FROM PRACTICE.

Hemorrhage, septic infection and inflammatory troubles in the puerperal state are often so closely associated, so dangerous to life or in any case to future health, and arise so unexpectedly at times that it behooves the physician to be prepared and alert in every case of obstetrics. The placenta is, in some instances, so roughened that it is nearly impossible to determine whether or not a fragment is left in the uterus and in such cases he had always waited for evidence of such retention, in the form of unnatural hemorrhage, or the passage of small fleshy-looking masses with pain and unsuspicious bleeding. In every case his best endeavors are made to leave no part of the secundines in the uterus by reason of a faulty delivery of them. The author's manner of causing their expulsion is by grasping the uterus through the abdomen with one hand and pressing firmly but gently in the direction of the birth canal, varying the direction of pressure within certain limits until he feels the tumor descending. At the same time gentle traction is made on the cord with the other hand in amount which would be slightly more than necessary to lift its possible weight, taking all the time necessary for its gentle delivery, after which it is carefully inspected. He then gives the woman a drachm of ergot, has the patient and her bed made clean and dry, a binder comfortably applied, and allows her to assume any reclining position in which she is the most comfortable. He believes it a good rule, and adheres to it, not to leave the confined woman under one hour from the birth of the child and not then, unless her condition is good. Remaining with the patient this length of time insures good contraction of the womb and removal of clots from the birth canal, should evidence of their presence arise, thereby lessening the danger of any disturbance later in the puerperium. The author then detailed the histories of two very instructive cases and outlined the treatment.

OBSTETRICS IN A COUNTRY PRACTICE

By DR. C. M. NOBLE, of McLean. The country practitioner must necessarily on account of circumstances be a specialist in the various branches of medicine. How well he may succeed in his efforts is quite another matter. In this day of asepsis the specialist on obstetrics would be very cautious about handling any case which might in any way bring contamination to his maternity patient. It is the author's plan to thoroughly disinfect himself by scrubbing his hands and arms, and washing with disinfectants as if he were going to do an abdominal operation. The finger nails should be thoroughly cleansed and scrubbed with brush and soap. The arms of the operator should be bared and the coat and vest removed. The author believes that in the matter of obstetrics that there is no one thing that is less understood by the laity than sepsis. It is astonishing the amount of ignorance displayed by many people as regards this point; and it seems to him we have no more serious question to deal with. Every obstetrician should impress upon the minds of his patrons the necessity of perfect cleanliness, and teach them the manner by which septic poisons are many times communicated to the parturient woman.

DR. A. C. COTTON, of Chicago, read a paper on "Early Care of the Infant."

DR. ELLEN H. HEISE, of Canton, followed with a paper on

THE TREATMENT OF ARRESTED GROWTH IN CHILDREN,

in which she reported cases showing the practical application of the principle that, other things being equal, the horizontal position favors increase of stature in young people. In the case of a healthy young girl, who had remained about the same height from her tenth to fifteenth year, she induced the mother to put her to bed for three months, only allowing her to sit up for a few minutes at a time, but otherwise making no changes in her mode of life. She had not the measurements in her case, but the girl had the satisfaction of outgrowing all her clothing, and by insisting on her

passing several extra hours in bed each day for the next two years she gained the height of her mother and was satisfied. In another case a healthy boy of 16 years of age, the son of tall parents, the height was fifty-seven inches, while the arm extension was two inches more. There had been no appreciable growth for about six years. The horizontal position, continued for three months, resulted in an increase of three-quarters of an inch in height, and Dr. Heise confidently believes that the removal of longitudinal resistance to the growth of the skeleton will prove amply advantageous in those cases in which normal growth is too early arrested.

Dr. J. E. Covey, of Lexington, read a paper on

THE CARE OF THE PARTURIENT WOMAN.

To act intelligently the physician should be able to recognize the physiologic limits of the symptoms resulting from labor. He believes in the care of the puerpera that the physician will have done his whole duty when he surrounds his patient with those conditions where nature has the least opposition in her reparative processes. Consequently a warm dry bed and perfect rest will be the first things he will secure for her. The child should be kept out of the room for several hours. The room should be darkened and the patient allowed to sleep. No one should be allowed in the room but the nurse. The air in the room should be kept pure and at an even temperature. Cleanliness in all instances should be rigidly enforced. Unless the lochia becomes putrid, or there is dryness and soreness of the genitalia, he does not believe that frequent injections are necessary. The external parts should be bathed with a warm antiseptic solution, and should the secretions become putrid or the vagina become dry and tender, warm carbolized injections will not only destroy the fetor, but give great comfort to the patient. The patient should be directed to empty the bladder during the first twelve hours, and failing to do so, should be catheterized. Diet must be light for several days and should be selected according to the requirements of the patient. Not later than the third or fourth day the bowels should be evacuated. As to the time when the parturient shall leave her bed, the author's rule is to keep them in bed for two weeks and not allow any active exercise for six weeks longer. Lacerations of the perineum will occasionally occur in the practice of the most skilled accoucheur, and he closes them immediately after labor, or within twenty-four hours.

ENDOMETRITIS.

A paper on this subject was contributed by Dr. S. M. Wylie, of Paxton. After defining endometritis, the author said the earlier the cases are recognized, and the more energetic the treatment, within certain limitations, the more satisfactory the results will be. The preliminary treatment by hot douches, boro-glycerite, cotton tamponade or ichthyol glycerine, 20 per cent. on wool tampons, giving support to the uterus and ovaries, taking off tension from the uterine ligaments and by pressure as well as exosmic influence, removing plastic products about the uterus and supporting pelvic vessels, will do much toward relieving the congestion and hypersensitiveness and lessen the dangers attendant upon the more radical measures necessary for their relief, which is, first, curettage, which offers the best treatment at our command. After thorough curettage, the application of pure carbolic acid to the entire cavity is used, or the gentle injection of fifteen or twenty drops of compound tincture of iodin, with a Carl Braun syringe, following this with a thorough uterine irrigation with sterilized water, or a 1,000 aqueous sterile solution of iodin without the previous application of the carbolic acid or iodin.

The general treatment of these cases after the immediate causes have been removed consists in keeping the bowels unloaded, administration of proper food that will be easily digested and assimilated, bathing, massage and a free use of water internally for drinking to flush out the sewer gates and unload waste tissue products. Uterine drainage should be regarded as of the first importance, and the author uses iodoformized gauze in all acute septic cases for packing the uterus, as well as in the chronic cases, where repair of the cervix has not been performed. Curettage should be accompanied by a repair of both the cervix and perineum if torn. Dr. Wylie has no faith in so-called intra-uterine medication in this class of cases with mops or applications of acids, astringents and other medicines.

Dr. J. A. Freeman, of Millington read a paper entitled

THE INTRA-UTERINE REMOVAL OF MULTIPLE MYOFIBROMATA,

in which he said, after referring to the various methods for removing these growths, that tumors as large as medium sized oranges, which grow outwardly, or subperitoneally, and which have but a thin, if any, muscular external covering, can be successfully removed *via* the intra-uterine passage. He had in several instances removed quite large ones successfully by that method. He showed fifteen small tumors which he had removed at one sitting from a patient from whom he, twelve years previously, dispersed or caused to shrink to a size so small as not to be felt, a tumor as large as his fist by electrolysis, and which never grew again. After this tumor had disappeared he found two other (smaller) ones growing which he caused to project internally into the uterine cavity by injections of ergot and the internal administration of the agent, and finally removed them. He raised the question, Is it not best to remove these tumors *via* the intra-uterine and vaginal canals in all cases in which it can be done, thereby leaving the patient without any subsequent annoying adhesions, and capable of performing all of the functions natural to a perfect woman?

Dr. O. B. Will, of Peoria, read a paper on

SOME GENERAL CONSIDERATIONS ON DIAGNOSIS IN GYNECOLOGY.

He first called attention to the great desirability of devoting a larger proportion of time and effort to the attainment of diagnostic skill; and, also, to the end of studying more closely the actual state and condition of the local system, as well as its individual organs, under circumstances of apparently perfect, or approximately perfect, general and local health. The author then briefly presented the essential features of three cases in illustration of his point of support, which served rather to suggest a lack of attention to diagnostic landmarks and careful scrutiny, than downright ignorance; but viewed in either light, they are rife with information and lessons of a practical character, in that they evidence the necessity of careful, thoughtful diagnostic skill as the very basis of a valuable reputation and a successful therapy. In the diagnosis of gynecologic affections, as of those of other systems of the human economy, the object is to determine the kind and degree of departure from the normal anatomical and functional attributes of the several organs, and their relationship to each other, without the involvement of serious disturbances.

In conclusion, Dr. Will said we should aim at an accurate and decisive diagnosis in all cases. To that end we should study well the attributes of normal structure, form, position and association. To the right minded physician no difficulty need be experienced in securing opportunity. We should use all the means at our command, both natural and artificial, bearing constantly in view the ideal method, embodying preservation of tissue integrity and obedience to the aseptic and antiseptic principles of the age and time.

Dr. Casey A. Wood, of Chicago, read a paper entitled

FOREIGN BODIES IN THE EYE.

The responsibility assumed by the surgeon who undertakes the care of an eye whose envelopes have been penetrated or ruptured, is greatly increased by the fact that not only the vision of the injured eye, but that of the second eye may be at stake. The dreadful possibility of sympathetic or migratory ophthalmia should always be borne in mind. This disease runs such a chronic and painful course and is so disastrous in its effects that when once encountered it is never forgotten. It was not the author's purpose to weary the members with a discussion of certain theories respecting the pathology of ophthalmia migratoria, but rather to indicate some of the principles commonly regarded in dealing with certain ocular injuries and to illustrate these with some cases that had come under his own observation. First of all, ocular traumatisms may be empirically, but, he thinks, usefully and practically divided into three classes: 1, those that are serious or not from the standpoint of sight only—where we are mostly concerned in asking whether or not the patient is likely to have useful vision in the injured organ; 2, those that threaten the integrity of the second eye whose vision may at the time be fairly useful. Here the eventual vision of the injured eye must be subordinated to the protection of the fellow organ; 3, those cases, probably the most numerous, in which sight is destroyed in the injured eye and anxiety may be felt in respect to the vision of the other eye.

The author then reported the histories of three cases which belonged to the first class. As examples of the second class he also briefly detailed the histories of three cases. Of the third class, he gave but one example, and said that injured eyes of this class should always be removed.

As an aid to prognosis and treatment, he suggested the following rules:

1. As long as the wound heals without difficulty and no

sympathetic irritation persists I would treat with rest and antiseptics and would not remove any eye whose injury is confined to the cornea, iris and lens.

2. I would not enucleate an eye containing a foreign body where the injury confined to the tissues of the foreign body, could be removed.

3. I would not remove an eye containing a foreign body if there was no injury in the ciliary region, and the missile had passed through the posterior wall of the globe.

4. I would not immediately excise an eye injured by small shot (which are usually aseptic missiles) even if the wound were in the ciliary region, provided the patient could occasionally be seen by an oculist.

5. I would always excise an eye that contains a foreign body that could not be removed.

6. I would excise an eye in which the ciliary body had been injured, even if the sight were not much affected thereby. The only exceptions I would make to this rule are small gunshot wounds, in cases where the second eye is useless or had been removed, and those instances in which there is no continued uveitis of the injured eye, provided always that the patient could be frequently seen by an oculist. For the average man, however, excision or exenteration would be by far the safest procedure in the last instances. Where loss of sight goes along with ciliary involvement there can be no argument in favor of retaining the eye.

7. When once ophthalmia migratoria has set in, it is wise to retain the injured eye if there be any sight in it, as eventually it may be the better of the two.

8. It is safe and proper to remove all tender and inflamed eyes of adults where vision has been lost from a penetrating wound in whatever region of the globe.

9. It is highly desirable to retain the eyeball in patients under 20 years of age, if it can be done with safety to the better eye, since earlier removal of the globe retards the growth and development of the corresponding orbit and greatly alters and mars the facial expression.

(*To be continued.*)

---

## American Electro-Therapeutic Association.

*Fourth Annual Meeting held in New York Academy of Medicine, New York, Sept. 25, 26, and 27, 1894.*

WILLIAM J. HERDMAN, M.D., President.

(*Continued from page 809.*)

DR. NEWMAN LAWRENCE, M.I.E.E., read a paper on

### HYDRO-ELECTRIC METHODS, PHYSICS AND APPLIANCES.

#### INTRODUCTION.

The term "hydro-electric methods" is, I take it, but a sort of modern glorified edition of the old-time "electric baths." The advantage of its adoption seems to lie mainly in the fact that it offers to the lay mind a halo of obscurity through which there is little chance of recognizing any connection with so common and so medically-despised a "method" as the electric bath.

Judging from what I have seen and heard, the medical profession have very little respect for electric baths in America, and are content, for the most part, to leave the administration of them to the attendants of Turkish baths and similar institutions, regarding the whole business as either a fad or rank quackery.

Looking at the matter as an electrician, it seems to me that electric baths and especially modern developments now designated hydro-electric methods are worthy of better attention and study. For, if it be granted that physicians sometimes wish to place their patients under electrical influence, either local or general (and the very existence of this Association proves this to be the case) it is certain that one way by which this may be done is by electricized water and accomplished by it, moreover, in a manner widely differing from other "methods," as to physical conditions.

Where physical conditions differ, it is reasonable to suppose that physiologic and pathologic resultant influences may differ also; therefore, without in any way trenching upon the therapeutic value of these methods, it may be advantageous to consider briefly some of the physical conditions and problems of hydro-electric therapy.

The questions here dealt with, in accordance with the request of your Secretary, are those relating to the use of constant current only; thus it is manifest that it will be impossible to avoid going over some ground which is also common to the use of other forms of current.

The subject seems naturally to divide itself into the following heads:

A. Apparatus required.
B. The current employed.
C. The methods.
D. The patient (considered electrically).
E. Problems.

And I will ask your attention to each in turn, for a few moments. To consider them fully would take more time than lies at my disposal but I have endeavored to set forth an outline, based upon broad principles, fundamental facts and practical experience, which may prove useful in assisting any member of this Association who desires to turn his attention to the subject.

#### A.—APPARATUS.

A bath tub of porcelain, slate or wood, or perhaps of compressed paper—any way, of *non-conducting material*, if it is intended to use it for dipolar baths. The German pattern of bath tub is of oak, ovoid in shape, four feet ten inches long and two feet six inches wide. Height at head, one foot eleven inches; at foot, one foot five inches. I have found in practice that the tub may be conveniently a few inches longer and three or four inches narrower.

Electrodes in the German baths are fixed in various positions and communicate with a switch board by means of wires or conducting rods passing through the sides of the tub. This perforation for conductors in the sides of the tub always seems to me a source of weakness. However carefully connected, they often leak water sooner or later and, when once fluid leakage commences, electrical leakage can not be prevented. I much prefer electrodes which may be placed in the water in any position required and connected by insulated wires to terminals outside the bath tub. These, if of suitable size, may be made to answer all the purposes of the fixed German electrodes and entirely obviate the objections above referred to. An adjustable band of strong webbing to support the shoulders when the patient reclines in the bath, having leather straps and buckles or loops and buttons to regulate its length, is a convenient adjunct to the bath tub.

Of electrical apparatus, besides the battery or other source of supply, a switch board, a cell collector or rheostat or both and a milliampère meter reading up to 300 milliampères are necessary.

I have dealt more in detail with the electrical apparatus under the head of "current employed," but it may be well to state here that any such apparatus used should be of the best description. It need not be elaborate but it *must be good and reliable*. Such apparatus may be rather costly, as regards first outlay, but once purchased and properly installed it will outlast several sets of inferior quality besides being throughout far more satisfactory to work with.

#### B.—CURRENT EMPLOYED.

This, by the conditions of our program must be what is known as constant or continuous current, but the source of supply may be either a battery or a dynamo or as drawn from the street lighting mains. If a battery be used it must be of sufficient power, *i.e.*, it should consist of 40 to 60 cells having an E. M. F. of not less than 1 volt per cell, and these cells should be of fair size. Three-pint or two-quart Leclanche cells will do very well or any similar simple kind of cell; but complicated and not-get-at-able makes should be avoided. If larger cells are available, they may be used but it must not be overlooked that the size of the cell does not determine its E. M. F., and therefore no increase of size will do away with the need for a number of cells. At least 40 of any kind are needed, be their size great or small, but large cells possess more current capacity and therefore will *last longer* in proportion to their size. With a battery the means of control are generally either a cell collector or a rheostat or a combination of the two.

All control should allow of very gradual increase and decrease of the current. A cell collector therefore should not switch on more than two cells at a time. Even these small stops must be made without sudden jerks or the least semblance of shock to the patient in the bath, and this is extremely difficult to obtain in a cell collector. I have tested many and can not say that I have found one which satisfactorily overcame the difficulty.

A rheostat, on the other hand, of sufficient power, put in circuit with all the cells, becomes in this respect a perfect controller but is open to the objection, recently brought forward, that current passed through it is *more painful*, because all the E. M. F. of the battery passes to the patient, the total

energy administered (for an equal current supply) is greater and hence more pain may be produced. To what extent this objection holds good I am not in a position to say, but should expect it to be somewhat counterbalanced by the therapeutic advantages of the increase of total energy; while at the same time it is obvious that less current supply may be used and so the total energy made the same as it would be with greater current supply and lower E. M. F.

A combination of both cell collector and rheostat is sometimes recommended, and may be made to obviate both the difficulties above referred to, though its use is somewhat complicated and in the hands of an ignorant or careless operator may be distinctly dangerous. As an illustration of the latter point—suppose the cell collector acts by 10 cell steps and the rheostat controls within such steps, it will be necessary to move the rheostat switch so as to put in much more resistance previously to switching on ten more cells in order to prevent too great an influx of current supply. A double process of switching which could very easily be muddled so that the patient receives a severe shock.

*Dynamos.*—In institutions, hospitals and other large establishments having their own electric plant for light and power, the current so generated may be employed for hydro-electric purposes, provided proper precautions are observed to prevent accidents. On no account should it be considered safe to pass such currents direct through a bath with a rheostat only in circuit. The currents used in the dipolar bath are large (sometimes 200 or more milliampères) and their sudden break or increase might have very serious effect upon the patient. There are, however, controllers in the market which are much more than simple rheostats and in accordance with a suggestion, first made I believe by Dr. W. S. Hedley, of Brighton, England, in the *Lancet*, April 9, 1892, include a special safety automatic cut-out and a *shunt circuit for the patient.* The shunt or divided circuit is a very important safeguard, for, by the suitable adjustment of resistance in the two arms, the current in the patient's circuit may be made any desired proportion of that in the main circuit, and the automatic cut-out effectually prevents the passage of any greater current than the maximum to which the apparatus may be set for the time being.

M. Gaiffe, of Paris, has introduced a controller based upon the divided circuit plan which is very simple. To the best of my recollection, it consists of two arms of moderate resistance upon which move sliding contacts forming the terminals of the patient's circuit. By adjusting the contacts the E. M. F. of the patient's circuit may be anything from 1 or 2 volts up to the full voltage of the supply.

*Street Mains.*—In using the current from the street supply mains the methods of control are those given for use in institution installations. The two cases are almost identical and though the E. M. F. of the supply may differ, yet it would in all cases be greater than that required for hydro-electric application and therefore would have to be controlled.

*General Precautions.*—In all electric bath installations it is absolutely necessary to pay great attention to insulation of all leads and conductors. Water is a fairly good conductor and metal pipes are excellent conductors. Where electric light leads are about, in the same building, it is very common to find an "earth" or "ground" more or less marked, the consequences of which *may be very serious.* I have seen a patient, when in the electrical water, receive quite a shock on touching one of the water taps that supplied the bath, and this though on careful testing it was found that the insulation of the bath installation itself was perfect. In order to obviate this risk I recommend that the water taps and any others in metallic connection with the earth be placed so far out of reach that no person can touch them when in the bath or, if they must be near, that they be made of porcelain or glass, or at least well coated with some insulating substance. Damp woodwork, whether of wall, floor or bath casing, is a fruitful source of electrical leakage; the *dry wood* is in most cases a sufficient insulator. All switches, controllers, measuring instruments, etc., should be placed well out of the range of splashes and may be advantageously protected by a box with glass case front.

### C.—METHODS.

These may be dealt with under two heads, dipolar and monopolar. The older forms of electric bath seem to have been, with little, if any, exception, administered with both poles in the water. Hence the name, di-polar. There are varieties of the dipolar bath in which one of the electrodes is brought into contact with the patient's skin and which therefore may, to some extent, be called monopolar, but it seems to me more correct to class all methods as dipolar where the electrodes are *placed under water*, no matter whether they be also *in contact* with the patient or not. It follows that monopolar baths or methods are those in which only one electrode is placed in the water. The electric douche may be either dipolar or monopolar, but it is more generally the latter.

*Dipolar.*—The dipolar bath consists in the complete or partial immersion of the body in some conducting fluid, usually water, and the passage of a current through the composite conductor, fluid and body, by means of electrodes immersed in the fluid and generally kept apart from the patient's body. Sometimes one or both of the electrodes are made to touch the patient, while still kept under the water, with the idea of concentrating the lines of force at a given spot.

*Monopolar.*—In this form of bath, one electrode only is used in the bath water and the other is placed upon some part of the body not immersed. By this means either pole may be made the more active by concentrating the current at the non-immersed pole and widely diffusing at the immersed pole. For instance, if a patient be sitting in a bathtub full of water and one electrode be placed in the water and the other attached to his shoulder, the current will be diffused more or less over the whole of the immersed portion of the body but the entire current, be it great or small, must pass through the shoulder under the other electrode and is therefore concentrated upon an area many times smaller than that of the immersed body.

The monopolar form of bath may be used under circumstances which preclude the dipolar, for, while the latter requires a bathtub of considerable length and depth, the former may be efficiently administered with a sitz bath or even a good-sized basin and a sponge. A little water in the tub or basin covering a plate electrode forms the diffusing pole and the sponge, duly connected electrically, makes a convenient concentrating electrode. The patient sits or stands, as the size of the vessel will permit, while the sponge electrode is applied to such parts as need the special localization of current or is passed gradually over the whole body so that each part, in its turn, receives the stimulus of localized current. It will be readily understood that both forms of bath are capable of many variations to suit special cases. The general conditions only are here referred to.

*The Douche.*—For a long time it was doubted, in England at any rate, if electric currents could be administered to the body by means of fluid douches in any other form than in one strong jet or stream. I remember having some correspondence with the late Dr. W. E. Steavenson, Physician of the Electrical Department at St. Bartholomew's Hospital, London, on the subject, and in offering to prove to him that, with a properly constructed rose or sprinkler, electrized spray might be obtained. Unfortunately, the early death of that distinguished and careful electro-therapeutist prevented the proposed demonstration. Shortly after, however, I was able to prove the matter to Dr. W. S. Hedley, with the result that some interesting experiments, which leave no doubt on the subject, are published in his admirable work on "Hydro-electric Methods in Medicine." All that is necessary to insure that the water or other fluid is electrized when it reaches the patient is to have the nozzle so constructed that the jet or jets of water form *continuous streams* for a reasonable distance after they leave the metal conductor within the nozzle. A little attention to the mechanical construction of the nozzles will secure this. *Broken up spray will not* conduct the electric current any more than a broken up copper wire would do. There must be fluid continuity if we would have electric continuity. Dr. Hedley[1] records that with a 2-inch rose nozzle, having forty-nine perforations, he was able to administer 5 milliampères of continuous current to a patient when the nozzle was held one inch from the body, with plain water. When salt was added to the water 7.5 milliampères passed over one and one-half inches with that particular nozzle; while with a single jet nozzle he passed 20 milliampères over eighteen inches. With coil current the effects were much more marked, and when treated with a telephone in circuit showed the presence of current at very great distances.

Measuring instruments, or at least current indicators, are a necessary part of any electric douche plant, for without them it is impossible to know to what extent the apparatus is working or even if it is working at all. Speaking from personal experience and numerous observations, I think the douche application stands alone as a means of producing maximum concentration and localization of current with

[1] Hydro-electric Methods in Medicine, pages 43 and 44.

minimum pain. It is essentially an instrument of precision and in skillful hands is capable of graduated and modulated effects through the widest range. It is suited to internal as well as external applications and, owing to the perfect way in which fluids penetrate all the interstices of the orifices of the body and the electrization of the whole fluid, the electric douche forms a sure means of electrizing parts which could hardly be brought under the influence of the current by any other form of electrode.

I am strongly of opinion that the electric douche is worthy of careful attention and test by physicians, especially where internal electrization is required, and I look forward with pleasurable anticipation to the paper by Dr. Cleaves, who I understand has found the electric douche a most valuable adjunct to other methods in certain cases.

D.—THE PATIENT, CONSIDERED ELECTRICALLY.

It is manifest that the usual figures given for the resistance of the human body do not hold good when that body is immersed in fluid. Roughly speaking, the greater the portion of the body immersed the greater will be its conductivity and the less its resistance, but other factors have this influence. The body with dry skin possesses resistance several hundred times greater than that of plain water at ordinary bath temperature, say 95 degrees F. The difference is still greater when medicated fluids are considered. The resistance of the body rests mainly in the outer skin. Consequently, if the body be immersed in either plain water or medicated fluid its resistance will be reduced almost immediately and after being well soaked in the fluid the resistance may be brought down to between three or four times that of the fluid. Dr. Hedley tested a patient under bath conditions, as nearly as he could imitate them, and found his resistance to be 540 ohms, while that of the water alone was 140 ohms. It seems practically certain that the resistance of the body is always much greater than that of the bath water, and, even after several minutes soakage, is generally quite three times greater than the resistance of the water in which it is immersed. From this it is manifest that it by no means follows that because a certain battery will pass a certain current strength through a bath of water before the patient is placed therein, it will pass the same current strength when the patient is in position. It will do nothing of the kind, and this leads at once to one of the most interesting and complicated problems in electro-physics.

E.—IN A DIPOLAR BATH.

Given a bath tub of water, of known resistance, with electrodes of a certain area and a patient of known resistance before immersion, what proportion of the current strength will pass through the patient when he is immersed in the fluid, and the current is passed from one electrode to the other (*a*) when neither electrode touches his skin and (*b*) when one or both touch him under water? Numerous investigators have sought a solution to the problem, but so far, I believe, without success, though some have arrived at what looks like a reasonable approximation. The absence of an accurate determination is to be regretted for without it no reliable data for dosage in the dipolar bath can be established. Dr. Hedley, after elaborate and careful experiment, concludes that the body receives about 5 per cent. only of the total current. Steavenson and Jones previously stated in a broad manner and without giving any experimental data that the proportion is about one-eighth, but the mere bald statement of those last named can not be allowed to weigh against the very full and detailed investigation of the former. Still I can not say that I accept Dr. Hedley's figures as conclusive. I have repeated many of his experiments, conducted others of my own, and tried in many ways to devise some arrangement for measurement which shall fully meet all the conditions, but there is so much that is varying and always variable that the $x$ of the problem becomes a sort of hydra-headed monster bristling with unknowns in all sorts of unexpected places. For instance, though the diffusion of current in the water alone may be traced, and the lines of force mapped out with fair accuracy, the presence of the body at once disturbs the lines and deflects them or at least many of them from their direct course. This deflection and consequent alteration of the field might be calculated if the resistance of the body, when immersed, were known, but this, the key to the whole problem, has yet to be determined.

Again, the presence of the body raises the level of the water and consequently in those bath tubs where large electrodes are fixed, causes increased electrode surface to come in contact with the water. Thus another disturbing element is introduced. Yet again, with constant current the conduction is electrolytic in the water, and more or less so, in the body. This means counter E. M. F., and must assume appreciable proportions while the body resistence is being reduced by soakage.

The only way in which this problem can be solved is, I think, by means of specially constructed apparatus wherein the body and the fluid could be studied separately without being separated more than momentarily. Such apparatus I have not yet been able to secure, though I do not think it would be difficult to devise. In the meantime, Dr. Hedley's figures form a useful working basis and enable the physician to have some idea of the proportion of the current which reaches his patient.

Another interesting question is that connected with what are termed local dipolar applications, *i. e.*, bringing one or both electrodes into contact with the patient under water. If the patient was a better, or even as good a conductor as the water, doubtless much useful concentration of current might result; but, as the water has the lesser resistance the current from the electrode must to a large extent radiate outward through the water and away from the limb or other part of the body which it is intended to benefit. Of course when a limb is just between the electrodes the field around it, and to some extent through it, must be stronger than when the electrodes are some distance away but may not this be compensated for or even overbalanced by the fact that the transverse resistance of a limb is far greater than its longitudinal resistance. Having regard to these various points, it is clear that the dipolar bath is, physically, a very inefficient apparatus from the electrical point of view, because only a very small portion of the current used passes through the patient. Therapeutically, however, dipolar baths have a good record, and many physicians are content to waste current in order to produce the special effects that experience tells them is beneficial in many cases.

Monopolar baths, on the other hand, are very efficient, for all the current used *must pass* through the patient. Electrically there be no waste in the process and, if reasonable attention is given to the insulation there will be practically no loss in the connections.

It may be thought that I have, in this paper, given undue prominence to the difficulties connected with hydro-electric methods, and so discouraged their adoption and development in America. I have no intention of doing so, for, as I have more than once clearly stated in the paper, I believe that hydro-electric methods offer to the physician electrical opportunities which can not be obtained by other methods and therefore I would do all I can to encourage their development. It is to further this end, and not to hinder it, that I have given prominence to difficulties and dangers which it would be unfair to pass lightly over and which the true scientist will find pleasure in combating and overcoming.

(*To be continued.*)

---

**A Case of Genito-urinary Tuberculosis,** presented at the *Berliner Verein fur innere Medicin*, Dec. 10, 1894. Clinically, in addition to the manifest pulmonary and laryngeal phthisis, characteristic signs of genito-urinary tuberculosis were present, and, in particular, the pathognomonic evidence, tubercle bacilli in the urine in abundance, and arranged almost without exception in little heaps and groups, as is peculiar to these bacteria in the urine. Anatomically, a very interesting condition was presented, both in the very unusual intensity which the process attained in the affected parts, and in the limitation of the disease to one-half of the body from the bladder upward. The left kidney was permeated by a series of abscesses with caseous contents. The left ureter was converted into an immovable, rod-like structure, wholly degenerated from tubercle. The bladder was a mass of ulceration, its surface strewn with caseous and chalky particles. Tuberculous foci were found in the prostate, left seminal vesicle and left epididymis. The right kidney and ureter had remained intact. In the localization of the process in the left kidney, the case might be assumed as the rare descending type of genito-urinary tuberculosis, but for the fact that the extirpation of the right epididymis was performed five years before, and vesical symptoms did not begin until long after.—*Centralblatt für innere Medicin.*

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:
PER ANNUM, IN ADVANCE . . . . . $5.00
SINGLE COPIES . . . . . 10 CENTS.
Subscriptions may begin at any time and be sent to
THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Henry P. Newman, Venetian Building, Chicago, Ill., sending him a certificate or statement that the applicant is in good standing in his own Society, signed by the President and Secretary of said Society. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership.

On receipt of the subscription the weekly JOURNAL of the Association will be forwarded regularly.

Gentlemen already members of the Association should send their annual subscription to the Treasurer, or direct to the JOURNAL office.

All communications and manuscript of whatever character, intended for publication in the JOURNAL, should be addressed to the *Editor*, and all communications relative to the business of the JOURNAL, proof sheets returned, or in regard to subscriptions, should be addressed to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 86 Fifth Avenue, Chicago.

SATURDAY, JUNE 8, 1895.

## THE ADMINISTRATION OF CHLOROFORM.

RICHARD GILL, in the last volume of Saint Bartholomew's Hospital, has an article entitled "Notes on Chloroform Anesthesia," which, as it is based on large experience, will be read with interest. In conclusion, MR. GILL asks the question: "What is the best sign to be guided by, when chloroform is administered?" He comments thereon as follows:

"This is a question which does not admit of a general answer, because different rules have to be obeyed during the induction of anesthesia, during long and short anesthesia, and also when alterations are made in the patient's position. This much, however, may be stated concerning the induction of chloroform-anesthesia: the pulse may be ignored, but the respiration must be assiduously watched. How do we know that the patient is unconscious? By the alteration which the breathing undergoes; it is no longer controlled by the will; it has become automatic. But the patient being unconscious, how do we measure the amount of chloroform which is safe for the purposes of continued anesthesia? By the size of the pupil. Sometimes the pupil is large and sometimes small, when unconsciousness is induced. The large pupil may mean narcosis; the small pupil is always the sure sign of safe anesthesia. The small, contracted, or pin-point pupil is, then, the measure of anesthesia, and is unquestionably the safest sign to trust; for during anesthesia, and especially during prolonged anesthesia, the respiration may become imperceptibly labored, and its new character may escape detection, the more particularly by inexperienced administrators.

"But while the breathing is becoming impeded, the pupil is slowly dilating and losing its sensitiveness. This change in its character indicates that the extreme limit of anesthesia has been exceeded. The stage of narcosis has been entered upon, and it is the pupil, not the respiration, that has given the signal. When the patient's position is altered, as from the supine to the lateral, the breathing becomes obviously changed. To rely entirely on the respiration would, in this new condition, lead to a return of consciousness. Here the pulse is of use in determining the right amount of chloroform. Is the pulse of no further service? Undoubtedly. In prolonged operations it is the first to give signs of depression, and must be watched with care and attention, so that when it begins to fail, those means may immediately be put into action which are best known to maintain the flagging energies of the patient. It is thus collapse is anticipated, and, if not prevented, in some degree mitigated."

## "LOIMOGRAPHIA," A DESCRIPTION OF THE GREAT PLAGUE.

The Epidemiological Society, in its current thirteenth volume, has a contemporary sketch of the London Plague of 1665. This valuable paper has been rescued from the hidden riches of the British Museum, at the instance of DR. JOSEPH FRANK PAYNE, the late President of the society named above.

The historian was MR. WILLIAM BOGHURST, an apothecary, who sold drugs at the "White Hart" shop in the parish of St. Giles-in-the-Fields. The manuscript was prepared for the printer, but it was either not printed or was consumed in the great fire, as were many other newly issued works.

BOGHURST was something more than a book-making apothecary. His book speaks of his independence, his skeptical analysis of current theories, his personal investigations at the bedside, and philosophical vein withal. He says of his undertaking to write on the Plague that there were many persons able to do the work better, "who might have saved me the trouble, and have done it better, especially if they had not been timorous, and like Foxes in a storme, run to the next borough."

The author traces the Plague to cases that had existed in London for three or four years prior to the great prevalence, rather than to a recent importation from Turkey through Holland, as is asserted by other writers. He recounts some of the numerous explanations of the rise and progress of the disease, rejecting not a few as fanciful and as drawn from a lack of actual observation. Of himself he says: "I have writt nothing from hearsay, or from bookes, or from the testimony of others, or of my own conceit, but all and only from experience and triall."

The diversity of causes he locates in the "fæces of the earth, and it always arose *ab infra et non de supra*"

by a fermenting action "extracted into the Aire by the heat of the sun and difflated from place to place by the winds." Of the post-mortem appearances of the disease he has little to say, for he was too busily occupied with his large practice among the pest-stricken ones to have time for that line of inquiry. He places much dependence upon the record of the pulse of the sick, and sat for considerable periods at a time holding his patient's pulse. Of his treatment the editor has taken much pains to give the palliatives, poultices and plasters upon which BOGHURST relied. That the latter was not bound up to a routine of practice may be seen from his saying that "one way of Cure will not serve for all, but wee must doe as contingencyes doe divert us. By continuall following of one course, occasion is given to every Mountebanke, tradesman and ignorant Old Woman to practice. The Good and the Bad fared all alike, and if any fared worse, I thinke it was the Good." He notices the presence, and in certain patients the intercurrence of spotted fever.

The increase of vermin, meaning rats, is noted by the author, a condition paralleled in the late plague in the Chinese cities, with this difference, that our modern interpretation of the phenomenon implies that these animals leave their haunts and come to the surface to die.

Of the "Prognosticks" of the Plague, upon which so much concern and intellect—in the field of fancy and panic—were expended, BOGHURST writes but briefly. His own time being occupied with bedside work chiefly, he was not led away by "other men's weake observations." He contents himself with a general confession of ignorance in scriptural phrase: "I think," says he, "it may be said of the Plague as is said of the Wind, that it bloweth where it listeth, and we heare the sound thereof, but know not whence it came nor whither it goeth."

The word "Loimographia" has an unaccustomed look, but it is recognized in the larger lexicons as one referring to "a description of the Plague and other infectious diseases."

## THE TREATMENT OF FRACTURED PATELLA.

Which is the best or most successful procedure to adopt in treatment of fractured patella, is a question which has been frequently discussed, but which still remains unsettled. The reasons for this are not attributable to any fault on the part of surgeons, notwithstanding the proverbial difficulty about doctors agreeing, but they are inherent in the very nature of the clinical problem. This was recently very well illustrated in a discussion by the Section on Surgery of the College of Physicians of Philadelphia. At the meeting held April 12, DR. J. WILLIAM WHITE presented three cases in which brilliant results had followed BARKER'S operation. All of them were in adult males, engaged in mechanical pursuits, who had received simple transverse fractures of the patella. All were confined to bed only a few weeks, two had left the hospital and returned to work inside of two months and one in eleven weeks from the time of injury. The method of BARKER, as described in the *British Medical Journal* (Feb. 27, 1892), is to encircle the patella with a vertical, antero-posterior silk ligature which, when tied, holds the fragments firmly together. The operation is done subcutaneously and the ends of the ligature are cut short. The original operation was slightly modified by PROFESSOR WHITE.

MR. BARKER uses a long needle, which enters the tissues below the patella and passes through the tendon, or ligamentum patellæ, into the joint, and being carried upward behind both fragments emerges from the tissues above the upper fragment. A stout, twisted silk ligature is now threaded through the eye at the point of the needle, and is carried downward behind the patella. The needle is then re-introduced into the lower opening and carried upward again, but this time in front of the patella; now being brought out at the upper opening, it is again threaded so as to carry the other end of the ligature down in front of the patella and out of the lower opening. The fragments are then approximated carefully and the ligature tied with a surgical knot, the ends cut off short, and antiseptic dressing applied.

PROFESSOR WHITE always makes a puncture with a knife, so as to secure an opening through the tendon large enough to discharge clots of blood and serous fluid, before introducing the needle; thus reducing tension and favoring early repair, by drawing off the effusion from the joint.

In the discussion which ensued, the admirable results in the cases submitted were fully acknowledged. The reporter was complimented upon the complete restoration of function, and upon the reduction in the length of treatment. Most of the Fellows who examined the cases thought that the union was bony, others considered it ligamentous, but all agreed that it was firm, and that the results could not be surpassed by any other method of treatment.

In opening the discussion, PROF. JOHN ASHHURST JR., said that a good deal of stress should be laid upon the character of the injury in speaking of the treatment for fractured patella, since a fracture of this bone in one case is not the same thing as a patellar fracture in another case. He laid especial stress upon the point of diagnosis: whether or not the injury is limited to the patella. If the lateral ligaments are torn, or other structures of the joint injured, the consequences are quite different from a simple fracture. The functional importance of the patella (which is only a sesamoid bone) has been greatly exaggerated. If there are no complications, walking is not made impossible, as is generally thought to be the case.

If the patella be broken by direct force, and there are no complications, the disability is very slight, and the patient retains the power to extend the leg as well as he did before receiving this injury. After excision of the patella, in gunshot wounds, the function of the quadriceps tendon and movements of the limb are preserved. The patient can walk, but does not do so because it hurts him. He concluded that a great many cases of fractured patella will recover and have very useful limbs, without special care. His own experience had been that, in simple fracture, of the patella, in the great majority of instances, a satisfactory result will be obtained by the ordinary and usual methods of treatment. The matter of separation of the fragments may mean very little of consequence, since there have been cases with several inches of separation and yet the patient had not been prevented from walking about and attending to the ordinary duties of life, even when they are as active as those required of a sailor in going up aloft. This is because the fibers of the quadriceps tendon are not broken. When this complication occurs, the disability is more marked, and surgical intervention becomes necessary. He preferred mechanical methods by splints, a fixed dressing and rest in bed; when more is needed he would give the preference to those methods which do not open the joint to those which do.

The contention of MR. JONATHAN HUTCHINSON, that the separation of the fragments has for its sole cause the effusion into the joint, he considered just. Since the superior fragment is forced upward by the effusion and not drawn up by muscular action, he said that all that is necessary to do, in order to secure apposition, is to remove the effusion by aspiration of the joint. In the great majority of cases nothing more is needed than to apply splints and elevate the limb. A firm fibrous union is just as satisfactory to the patient as that obtained by any cutting methods, and he was very skeptical about bony union in any of these cases. SAYRE'S case was referred to, which in the dry specimen appeared to be united by bone, but after maceration for a short time, it was found to be ligamentous. The arguments with regard to bony union he regarded as misleading and theoretical; the ligamentous union is just as good. The disability after fractured patella, PROFESSOR ASHHURST attributed not to inability to throw the limb forward, but, frequently, to moderate ankylosis, owing to the fact that some form of apparatus is generally worn for six months or more, and that, as a result, some stiffness will result which, however, will subsequently pass off by exercising the part. He did not approve of the use of MALGAIGNE'S hooks, but spoke favorably of a method which consists in placing an acupressure pin transversely through the soft tissues above the upper fragment of the patella, and a second one below the lower fragment, and uniting them with a ligature thrown around both pins in a circle, or ellipse.

DR. KEEN presented a patient, seen some time after the injury, in which the fragments had been so widely separated that they could not be brought together. He had practiced the method of scoring transversely the lower surface of the quadriceps, suggested by TREVES, but still could not bring down the upper fragment sufficiently. He then adopted the novel expedient of lengthening the lower tendon by chipping off the tubercle of the tibia and allowing it to slide upward. The fragments were then brought together and fastened with thick silver wire, the wound properly dressed, and the patient recovered with a useful limb.

DR. G. G. DAVIS said that where swelling prevents the approximation of the upper and lower fragments, sometimes, by waiting a few days, the effusion will subside and the bone can then be held in place by adhesive plaster and bandages. The interposition of fibrous bands might delay healing, but would not produce markedly deleterious results, and their influence in producing such results had been much exaggerated, in his estimation. When the swelling does not go down promptly, he advocated tapping the joint and irrigating with normal salt solution. If necessary to hold fragments in apposition, he would use MALGAIGNE'S hooks, in preference to the passage of silk through the joint, a perilous procedure, as we know that it is impossible to disinfect the lower layers of the skin. If a stitch abscess may occur, then there is liability of the infection being carried by the silk into the joint. The good results obtained by DR WHITE are attributable to the fact that, after the fragments are secured, early passive motion can be instituted. CHAMPIONNIERE aimed at the same result by the use of wire, and DR. DAVIS suggested a modification of MALGAIGNE'S hooks, having the same object in view.

PROFESSOR WHITE replied to his critics that he had not seen any results from what has been termed the old-fashioned treatment, which would at all compare with those he had obtained by the BARKER operation, and the same claim has been made by others who have performed it. Instead of the patients wearing apparatus for months or a year after the accident, his patients had returned to their work in two months without any form of splint or support whatever, and have perfect use of their limbs. He did not attach much importance to the question of bony union, as he was more interested in clinical results than in museum specimens. The shorter term of rest in bed and retention in the hospital, is a matter of great importance to a mechanic, and the ability to return to active industrial pursuits in a couple of months was to him the most striking result of this method of treatment.

The above summary of an able discussion of the

treatment of fractured patella contains some novel recommendations as to the management of these cases, but is especially interesting from the lucid explanation of the impossibility of surgeons coming to an agreement upon the method of managing fractured patella, considered as an abstraction; whereas when confronted with a given case, or cases illustrating simple and complicated fractures, there might be less difficulty in indicating the proper course to pursue. Not only are the pathologic conditions, or the results of traumatism to be considered, but the many modifying factors in the person or the environment of the subject must be allowed to have due weight, just as in other surgical problems, in which individual cases are to be decided upon their own merits. We agree with ASHHURST that fractured patella in one man is not the same as fractured patella in another man, and hence there can be no absolute and invariable rule of procedure in the treatment.

## WARFARE AMONG THE ADVERTISING "SPECIALISTS."

An advertiser of New York City, a "Doctor" H——, although he is a regular graduate in medicine, is a specialist "on the lung." After hunting the gulls of both country and city, he is now hunting one or more of his associates on the charges of forgery and larceny. The men who kept his accounts and correspondence, and who did the pharmacal work, set up in business for themselves and diverted to themselves quite a large share of the out-of-town receipts. In the course of this crooked work it became necessary to work off a fraudulent certificate of death. It was in the perpetration of this crime that the "doctor" got wind of the system of swindling of his associate "doctors."

That certificates of death should be received from the "doctor," and not from the other advertisers does not appear to have been explained, but it may be, for the moment, assumed that he is what the State Medical Society of New York has voted to harness itself with, namely, "a legal practitioner." Otherwise it will be difficult to explain how it came to pass that the "doctor" would venture to invite the law officers of the city to intervene on his account. However, they have so done, and the grand jury has found an indictment against the partner, named W——, for forgery in the second degree. His arrest followed and he was held in $1,000 bail; an amount that he was unable to obtain. He was locked up in the Tombs. His lawyer has claimed for him that he has a medical diploma from a Venezuelan university.

The co-parcener in the fraud committed against the principal can not be found. This co-parcener was the one who had the knowledge of accounts, addresses of patients, etc., being the better able to aid "Dr." W—— in establishing a "chronic department" under the nose of his employer. Under this "department" they were able to fleece certain of the "doctor's" patients to the extent of $25 for the first month and $15 for the second month of pretended treatment. All of which shows the gullibility of mankind, especially of the sickly half thereof.

It does not speak very favorably for the medico-legal status of a community that permits such enterprises to bud, bloom and blossom forth so luxuriantly; and also permits the most flagrant end of the fraud to obtain quasi-support from the medical and legal authorities. Has the New York County Medical Society or Academy of Medicine any grounds for action against these people?

## SMUGGLED PHENACETIN.

The firm of SCHIEFFELIN & Co., of New York City, has recently notified the Secretary of the Treasury of certain frauds upon the revenue. Drugs made in Germany, like phenacetin and sulfonal, have been brought into the country through Canada and sold at a figure 20 to 25 per centum lower than the regular prices of the authorized distributing agents in New York.

One druggist, hailing from Montreal, has been arrested and others in that city are on tenter-hooks in view of confessions said to have been made concerning the evasion of the revenue laws, which confessions are by two parlor-car porters, who have for years been on the Montreal "run" of two lines of railway. One porter was arrested in Boston.

The Treasury agents are said to be in possession of the names of numerous carriers and buyers of the low-priced drugs. The arrested Montreal druggist was put under bail of $2,500. When his case was called May 28, he did not appear and his bail was put in default.

## EUTHANASIAN HOME FOR NEW YORK CITY.

Those who have followed the specialization of charities in London have been aware of the establishment in that city of a home for the dying. It has something of an endowment and is limited to ten beds. It receives those who are hopelessly sick and believed to be near to death's door.

The *Evening Post* of New York has argued the advantages of such a home for that city, and it might be suggested if that paper is able to push the matter along to a successful end, that the name of the great poem of the late noble-minded editor of that paper—MR. WILLIAM CULLEN BRYANT—be chosen for the institution, as a part of its title; that is, it might be called the Thanatopsis Hospital, or Home. This would be better than the bald, rather repellant title, Home for the Dying.

There are doubtless many cases of given-up, non-medicable patients who would be vastly better off in

such a home, where trained nursing, if naught else, might be given to assuage the bitterness of a lingering death, than they could be in their own homes. Such an institution should be fully endowed, or not started at all.

## THE ASSOCIATION.

One of our oldest and most valued members said the other day: "Why do you keep constantly drumming for new members? Is not our ASSOCIATION big enough?" Why, bless your soul, dear fellow, don't you know that nothing keeps spirit, dash and enterprise in our work, like the missionary work the members have done and are doing to lift our brave body into the place it should occupy as the foremost organization of medical men, at once the most powerful for good to humanity, and helpful to the profession itself. Of course it is a great ASSOCIATION, but it should be greater. Let us work, then, as we never worked before; to secure, first, the *largest* membership, and second, the *best* membership. Our ASSOCIATION to-day has only about one-third the membership of the British Medical Association. We *must* work, therefore, in generous rivalry, until we stand first, instead of second, and that is why we earnestly urge every member to put forth his own effort to increase the membership.

# CORRESPONDENCE.

### The Kansas Hypnotism Case.

MILWAUKEE, WIS., May 31, 1895.

*To the Editor:*—Some time ago the secular press published a statement to the effect that the Supreme Court of Kansas had recognized a plea of hypnotism as a defense in a trial for homicide. Since then the statement has been reiterated, not only in a great many newspapers, but in some of the medical journals as well.

The statement is entirely untrue. The facts in the case are these: one Gray incited McDonald, an employe of the former, to kill a man named Patton, also an employe of Gray. McDonald was tried in the lower court and the defense sought to prove that Gray's influence over McDonald was exerted through hypnotic power; and the judge of the lower court allowed the introduction of expert testimony to establish this fact. McDonald was acquitted by the jury in the lower court; so his case did not reach the Supreme Court at all. Gray was tried in the same court and convicted. His case went to the Supreme Court on appeal and the judgment of the lower court was affirmed.

In the case of Gray, no testimony seems to have been introduced relative to the subject of hypnotism. Gray was convicted as an accessory. Judge Allen of the Supreme Court, wrote the opinion (May 2, *Pacific Reporter*, page 1050); and touched only four points, none of which had the remotest connection with hypnotism.

An examination of the testimony given in the lower court in the case of Gray shows that McDonald, with his wife, lived in the same house with Gray while Patton, the murdered man, lived on a distant part of the farm. Patton came over to Gray's house one morning and became involved in a quarrel with McDonald during which blows were exchanged. Patton then left, threatening McDonald with future punishment. After he was gone Gray told McDonald that Patton was a dangerous man, that he had killed seven men, and that he would "get some of us unless he were killed." He afterward took McDonald out into a field and instructed him in target shooting with a rifle. They then returned to the house and Gray cleaned the rifle, which belonged to him. He then took McDonald into an ambush, gave the rifle and some cartridges into his hands, and left him to wait for Patton who was expected to soon pass near to the place of McDonald's hiding. Gray returned to his house, but McDonald lay in wait several hours and when Patton was passing by shot and killed him.

The case is entirely devoid of any suspicion of hypnotic influence. It seems that McDonald was a man of very inferior intelligence and that fear for personal safety generated by the talk of Gray was his only motive in committing the deed. It is not possible to account for the verdict of the jury which acquitted McDonald, without knowing the characters of the parties involved and all the local prejudices which existed at the time of the trial.

JOHN MADDEN, M.D.

### The Medical Profession and the Paris Exposition of 1900.

SOUTH BOSTON, MASS., May 29, 1895.

*To the Editor:*—There is a matter which it seems to me ought to interest medical men universally and to which I have seen no reference made as yet.

The Paris Exposition will be held in 1900. There, doubtless, medical science will be well represented. Would it not be desirable to have this representation systematized so as to enhance its value?

I believe no grander exhibit of things medical was ever made than that at the World's Fair in 1893, and yet the medical exhibit, as such, was a failure. I confidently assert that no doctor saw it all. No medical editor with comprehensive mind gave even a synopsis of what was there to interest the practitioner desirous of being abreast with the times.

I further assert that this failure to comprehend that exhibit was due to the defective manner of placing, or rather scattering the exhibit over the Fair grounds. To my personal knowledge there were medical exhibits in the Electrical Building, in the Anthropological Building and several separate exhibits in the Liberal Arts Building—in the spaces assigned to various nations, and for the most part difficult to find.

Why not have massed these separate exhibits together, so that the serried columns of facts, medical and surgical, should have irresistibly forced even the lay mind to comprehend the fact that medicine is a science and one of the greatest.

Anent the Paris Exposition of 1900, my proposition is this: *have all exhibits illustrative of medicine under one roof.* Doubtless this result can be attained if the attention and interest of the proper authorities can be secured—for France likes system, and simplicity is the essence of a good system.

Do you deem the matter of sufficient importance, Mr. Editor, for the representative medical journal of America to agitate? Respectfully,

EDWARD A. TRACY, M.D.

### Dr. Robert Koch and His Germ Theory of Cholera.

DUNKIRK, N. Y., June, 1895.

*To the Editor:*—Dr. Robert Koch has sought to explain the cause of certain diseases upon the hypothesis of the action of pathogenic germs, invisible to the human eye. Upon the

microscopic examination of the stools of cholera cases, he found different forms and kinds of germs, and among these was one of comma-shape, which he fancied was the cause of this disease. Through the process of "*culture*," and "*experiment*" upon the lower animals he asserts he has demonstrated that this germ is the actual cause of this disease. So confident was he that this newly discovered, comma-shaped object was the cause of cholera that for several years he continued to assert with the utmost assurance that the presence of these comma-shaped bacilli in the dejections of a person suspected of having this disease, constitutes positive evidence that the case is one of pure *Asiatic* cholera.

But this comma-shaped bacillus theory of cholera has proved a failure. These invisible comma-shaped germs are now found to be universal and harmless. They are found in the secretions of the mouth and throat of healthy persons, and in the common diarrheas of summer everywhere—they swarm in the intestines of the healthy and are observed in hardened fecal discharges as well. Dr. Koch to-day asserts that these bacilli are universally present. He even tells us that: "Water from whatever source frequently, not to say invariably, contains comma-shaped organisms."

Drs. Pettenkofer of Munich and Emmerich of Berlin, physicians of high distinction and experts in this disease, drank each a cubic centimeter of "*culture broth*," which contained these bacilli, without experiencing a single symptom characteristic of cholera, although the draught in each instance was followed by liquid stools swarming with these germs.

Dr. Koch has kept *au courant* with the foregoing facts, as well as others quite as significant, and, had he accepted the evidences which thus year after year have been forced upon him, his pernicious cholera germ theory with its most disastrous consequences in misleading mankind would have been unknown to-day. HENRY RAYMOND ROGERS, M.D.

### Mississippi Valley Medical Association.

INDIANAPOLIS, May 27, 1895.

*To the Editor:*—Will you kindly mention in the next issue of our JOURNAL that the twenty-first annual meeting of the Mississippi Valley Medical Association will occur at Detroit, Mich., on Sept. 3, 4, 5 and 6, 1895, and that assurances have been received from the railroad companies that one fare for the round trip will be the rate? Wm. Pepper, M.D., LL.D., of Philadelphia, Pa., will read the Annual Address on Medicine on the evening of September 4. Dr. H. O. Walker, of Detroit, the Chairman of the Committee on Arrangements, says that the local profession of that city is prepared to entertain the society handsomely, and the indications thus far point to a very large and successful meeting.

Sincerely yours, W. N. WISHARD, M.D.

### Mortality of Physicians.

BINGHAMTON, N. Y., April 29, 1895.

*To the Editor:*—Can you refer me to any article or table published on the mortality of physicians?

Fraternally yours,
J. M. FARRINGTON, M.D.

ANSWER.—For complete list of works on the diseases and longevity of physicians see the Index Catalogue of the Library of the Surgeon-General's Office, U. S. A., vol. XI, p. 225. For the edification of our Danish scholars we mention the following: Gjennemsnitslevealderen i den danske Lægestand i indevaerende Aarhundrede, M.C. F.C. Bladt, Ugesk. f. Læger. Kjobenh., 1879, 3. R., XXVII, 359, (which according to the "catalogue" means "concerning the duration of life of Danish physicians."

### American Pediatric Society.

HOT SPRINGS, VA., May 29, 1895.

*To the Editor:*—Our Society has passed the following resolution:

*Resolved*, That in the opinion of the American Pediatric Society the evidence thus far produced regarding the effects of diphtheria antitoxin serum justifies its further and extensive trial.

Yours,
SAMUEL S. ADAMS, Secretary.

## BOOK NOTICES.

**Immunity, Protective Inoculations in Infectious Diseases, and Serum-Therapy.** By GEORGE M. STERNBERG, M.D., LL.D., Surgeon-General U.S. Army, ex-President American Public Health Association, Honorary Member of the Epidemiological Society of London, of the Royal Academy of Medicine at Rome, of the Academy of Medicine at Rio Janeiro, of the Société d'Hygiene, etc. One volume, 325 pages, octavo, bound in extra muslin, bevelled edges, uniform with the other volumes of the *Medical Practitioners' Library*. Price, $2.50; in flexible morocco, $3.25.

The uppermost topic of the day is that of serum-therapy and protective inoculations. We have here a book by America's foremost bacteriologist, in which the question is impartially reviewed from a bacteriologic standpoint. The book is divided in two parts, of which the first is given to natural and acquired immunity, and the second to protective inoculations and serum-therapy. The diseases anthrax, chicken cholera, cholera, diphtheria, foot-and-mouth disease, glanders, hog cholera, hog erysipelas, hydrophobia, influenza, influenza of horses, pleuropneumonia of cattle, pneumonia, rinderpest, smallpox, swine plague, streptococcus infection, symptomatic anthrax ("black leg"), tetanus, tuberculosis, typhoid fever and yellow fever are separately treated.

In regard to natural immunity, the author apparently makes good his claim to priority to the theory so well supported by Metschnikoff, of phagocytosis, but yields readily to the view that the leucocytes are probably not the principal agency in the destruction of bacteria in living tissues. Buchner's demonstration that the ammonium salts, (any alkali according to Van Fodor) will increase normal resistance to bacterial invasion, is not accepted by the author as conclusive on this point, but as showing that the germicidal constituent of the tissues, whatever it may be, is only soluble in an alkalin fluid.

In regard to Haffkin's protective inoculations the author says the results "indicate that these inoculations have a real value, but that immunity is not immediately established, and consequently that during an epidemic a certain number of fatal cases may be expected among the inoculated as well as among the non-inoculated." The author regards the evidence in regard to immunity from smallpox, as probably due to the presence of an antitoxin in the blood of the immune individual. He cites his own experiments made at Brooklyn, and refers to Kinyoun's cases of injection of blood serum from an immune calf. As would seem natural, the author having devoted much of his life to the study of yellow fever, he again takes up the Domingoes Freire inoculations for yellow fever, those of Finlay, and resuscitates the old experiments of Wm. L. de Humboldt made in 1854 and 1855. We note a clerical error in the translation of the letter of Dr. de Humboldt to General Concha; in the original the number of cases inoculated by him in Vera Cruz was given as 1,438, not 1,458 as stated, (see Manzini, p. 2.) The bibliography at the conclusion of each chapter is valuable and complete.

We welcome the book to our table, not only as a sound and safe counsel on the theories of the day, but as an instructive and useful summary of the literature of the subject.

**Saint Bartholomew's Hospital Report.** Edited by SAMUEL WEST, M.D., and W. J. WALSHAM, M.D. Vol. XXX. London: Smith, Elder & Co. 1894.

The editors of these reports usually succeed in making an interesting report, but they have been remarkably successful this time. In addition to the routine reports of matters pertaining exclusively to the hospital there are twenty-six separate articles viz: I, Aneurysm of the ascending part of the Arch of the Aorta, taking the natural position of the Heart, by Samuel Gee; II, Primary Cancer of Pancreas by W. P. Herringham, M.D.; III, Chloroform Anesthesia by Rich-

ard Gill: IV, Symphysiotomy by C. Hubert Roberts, M.D.; V, on the Association of Cardiac Malformations, with other Congenital Defects, by Archibald E. Garrod, M.D.; VII, Treatment of Senile Gangrene by R. Cozzens Bailey, M.S.; VIII, The Great Omentum, by W. McAdam Eccles; X, Dietetic Value of Food Stuffs prepared by Plants, Rev. George Henslow, M.A., F.L.S.; XII, History of Diphtheritic Paralysis, by J. J. Macan, M.D.; XIII, Diagnosis of Diphtheria; XIV, Diphtheria Immunity of Puerperal Women, by James Adams, M.D.; XV, On the Gradations of Health and Disease, by Harry Campbell, M.D.; XVI, Life and Works of Percival Pott, (the Wix prize essay for 1894) by Thomas J. Horder, B.Sc.; XIX, Treatment of Nævus by Electrolysis; XXIII, A Second Year's Surgery at Saint Bartholomew's Hospital, by Henry T. Butlin; XXIV, Chronic Purulent Catarrh of the Accessory Nasal Sinuses, by W. J. Walsham; XXVI, Blood Casts in Phthisis, by Samuel West, M.D., and reports of interesting cases, by E. P. Paton, Edgar Willett, H. M. Bowman, G. C. Garratt, D. H. Goodsell and Thomas Smith, and "Notes," by T. Lauder Brunton, M.D., F.R.S., and W. J. Horne, M.D.

The article of Mr. Butlin is particularly interesting, as "in the last volume of the reports" he gave "an account of a year's surgery, during which" he "made the attempt to dispense with some of the rigid details of the antiseptic method, and showed how suppuration followed. . . . too frequently." This year the strictest precautions were observed and in consequence, the results were very much improved. We will quote a paragraph from Mr. Butlin which to our mind is well worthy of reproduction, as a caution to young dressers and assistants, not to overdo the matter of scrubbing:

"Let me say that the active preparation of the skin which has been described is only suitable for the skin of hospital patients. It is not only too vigorous, but wholly unnecessary for patients outside the hospital. Indeed, in some of the hospital patients, a smart eruption was not infrequently produced which was sometimes pustular. To say nothing of the discomfort which is produced by such a condition of the skin, I am not at all sure that it is more desirable to operate through the skin which is the seat of a pustular eruption, than it is to operate through skin which has been theoretically imperfectly prepared." While we are not prepared to go as far as Mr. Butlin, thore is no doubt that rough scrubbing is very frequently too vigorous.

A great many of the articles have a permanent value, and the volume well deserves recognition as one containing very much of enduring value.

**Pathology and Treatment of Diseases of the Skin, for Practitioners and Students.** By DR. MORIZ KAPOSI. Professor of Dermatology and Syphilis, and chief of the clinic and division for skin diseases in the Vienna University. With 84 illustrations. Translation of the last German edition under the supervision of DR. JAMES C. JOHNSTON. Pp. 684. New York: Wm. Wood & Company. 1895.

No one can speak with more authority than Kaposi on any subject connected with dermatology, and in the opening chapter the author points out that the study of skin diseases means the careful study of pathologic processes, which are nearly the same in all parts of the body, and the study of these pathologic changes on the skin furnish a very convenient means of comparison with analogous processes in internal organs.

There is a scholarly chapter on the history of the development of dermatology from the ancient to the most recent times, and then follow the fifty-three lectures which form the book.

In speaking of lupus, Professor Kaposi states that in Austria, lupus constitutes 66 per cent. of all skin diseases. The removal of lupus, says our author, "can only be effected by mechanical or caustic interference. The most rational and simple mode would be that of excision of the entire process, followed immediately by transplantation according to Thiersch's method or the ordinary methods of plastic surgery. Unfortunately, the localization and extent of the foci are poorly adapted to this plan of treatment. In addition, experience shows that relapses may occur even in the transplanted flaps. Nevertheless this method merits more frequent use. It should be kept in mind, however, that a flat thin cicatrix of the nose, eyelids and face, obtained by prolonged treatment, causes less deformity than a plastic operation which is not brilliantly successful."

**La Methode Brown-Sequard, Traite D' Histotherapie.** *La thérapeutique des Tissus, Compendium des Médications par les extraits d'organes animaux, par le* DR. M. BRA. OUVRAGE *précédé de lettres et préfaces de* MM. *les Professeurs* CONSTANTIN PAUL, MENDEL EWALD, BRUNS, EMMINGHAUS *et* BYROM BRAMWELL, *accompagné de 72 gravures.* Paper. 8vo., pp. 624. Paris: J. Rothschild. 1895.

It is now six years since Brown-Séquard startled the world by a communication to the Société de Biologie in which he set forth the surprising results of subcutaneous injection of testicular fluid, and since that time animal tissue extracts have been gradually increasing in use. The author has succeeded in this volume in bringing together a mass of facts collected of the results of the new therapy, which Ewald has named "organotherapy," "histotherapy," by its founder, or "cyto-therapy" as proposed by Gley. There are thirteen chapters, the first on Organic Liquids in General; II, Special Organic Liquids. In these chapters, the reagents used in the preparation, and the instruments are described, doses, frequency and general methods are given. The remaining chapters discuss particular extracts, their physiologic action, and therapeutic results. The whole is written from the standpoint of an enthusiast. The chapter on the use of the thyroid extract is very interesting, and its use seems to have been followed by more positive results than in most of the other preparations. The work is a complete summary of the literature of the subject.

**Weekly Abstract of Sanitary Reports.** Issued by the supervising Surgeon-General, under the National Quarantine Act of April 29, 1878, and the Act of Feb. 15, 1893. Vol. VIII., (Nos. 1 to 52.) Washington: Government Printing Office. 1894.

This bulky volume of 1,300 pages consists of the current numbers of the weekly abstracts for the year 1894 with a full index, bound in one volume for convenient reference. It will be found very useful, when comparing mortality tables or the various questions in epidemiology that may arise from time to time.

## PUBLIC HEALTH.

**Compulsory Notification of Infectious Diseases in Constantinople.**—An Imperial irade has rendered obligatory in Constantinople the notification of the existence of cholera, variola, varicella, measles, scarlatina, dysentery, diphtheria, typhoid and typhus fevers, whooping cough and phthisis. Doctors neglecting this notification will be fined.[1]

**California State Quarantine Station.**—Dr. J. H. Davisson, President of the California State Board of Health, announces that the board has made arrangements, which are being carried out as rapidly as official procedure will permit, for the establishment of a State quarantine station at Cabazon, which place is on elevated ground, not far west of Indio. A quarter-section of ground is being purchased for the station, and it is the expectation to place there the necessary equipment for the comfort of passengers who may be detained in order to prevent the invasion of disease. Dr. Davisson says the station is not intended for the purpose of establishing a quarantine against consumption, as has been reported. It

[1] La Semaine Medicale. April 20, 1895.

is intended rather to be used to guard against invasion by smallpox, yellow fever, cholera and similar diseases.

**Chewing-Gum is not Food.**—The great American craze of gum-chewing has gotten over to England and into the English courts. The *Public Health* for May, recounts a hearing before a Divisional Court, two justices sitting, the outcome of which was a decision that chewing-gum, or chewing-wax is not an article of food under the Food and Drugs Act of 1875. The price over there appears to be one half-penny a stick, and apothecaries who keep the article on sale have a label prepared which states that the article is, "For chewing only, not to be eaten." The effort to "stamp out" the use of chewing-gum in this instance was a complete failure.

**Washington Navy Yard Sanitation.**—In the recent report of the Navy Medical Board, appointed by Secretary Herbert to investigate the sanitary condition of the Navy Yard at Washington, it is pointed out that owing to the defective condition of certain sewers in that vicinity and the proximity of "the flats," from which during the prevalence of southerly or westerly winds, miasmatic effluvia are wafted over to the Yard, there is more or less malaria there and in its neighborhood. While the Commissioners of the District have no jurisdiction over "the flats," at least so far as the improvement of them is concerned, they have full control over the sewers and can do much to remedy the unsanitary conditions, and how this remedy may be applied is also suggested in the report. The Board says that even after all is done that the Commissioners can do, complete exemption from miasmatic influences will not be secured until "the flats" on the opposite shore of the river have been entirely reclaimed.

**Alcoholism in Belgium and Algeria.**—While the number of saloons and retail liquor shops in Belgium has decreased 38,000 in the last five years, the results obtained toward lessening alcoholism are not deemed satisfactory by the Government. A commission has been appointed to inquire into the ravages of alcoholism in that country and to study the remedies for the situation. According to Dr. Rouby, with a few exceptions the Arabs in Algeria drink nothing but water; the European colonists drink all the absinthe and alcohol. The number of insane sent from Algeria to the asylum at Aix bears out this assertion. From January 1 to August 1, 1894, two Arabs and fourteen colonists suffering from alcoholic insanity were received out of a population of 1,459,000—1,258,500 of whom are Arabs and 133,000 French. Thus with a population nine times less the French colonists furnish seven times more alcoholic insane. Rouby estimates that the proportion of non-insane alcoholics is 2,000 Arabs to 44,000 colonists for the whole colony. He thinks this furnishes food for serious thought, and that the conquerors are succumbing to alcohol faster than to firearms.[1]

**Deafness among School Children.**—The fact that myopia is frequent among school children is well known. It is not so well known that impaired hearing is also frequently met with. The children thus affected are often accused of being lazy and inattentive, when in reality their ears are at fault. Helot shows that these cases are quite common, are easily recognized, are generally incurable and when cured a large number of children are transformed, so to speak, both from a physical and a moral standpoint. According to Weil of Stuttgart, the proportion of school children with impaired hearing is 35 per cent.; according to Moure of Bordeaux, 17 per cent. Helot agrees with Gellé and other aurists that the proportion is almost 25 per cent. or one-fourth. All the children in a class should be carefully examined and these semi-deaf pupils will always be found among the "poor scholars." The cause of the infirmity is to be sought for—naso-pharyngeal catarrh following measles, scarlatina, whooping-cough, adenoid vegetations, hypertrophied tonsils etc.—and normal conditions are to be restored by appropriate treatment.[2]

[1] Rev Int. Med. et Chir. Prat., No. 8, 1895.
[2] Le Bulletin Medical, May 1, 1895.

**An International Sero-Therapeutic Institute.**—In an interview between Professor Rummo, editor of the Naples medical daily journal, *Riforma Medica*, and Professors Ferrannini and Behring, the famous German expressed the wish, in view of the present uncertainty as to the strength and purity of antitoxic serums prepared in different laboratories and used in different countries, that there should be an International Sero-Therapeutic Institute established, to which all serum manufactured throughout the world should be sent and tested by an international committee appointed for the purpose. A standard of strength and quality should be decided on, and the committee should withhold its sanction from any serum which failed to come up to the standard. This should apply not only to the diphtheria antitoxin, but to all kinds of serum intended for therapeutic use. In fact, there should be a control of serum of exactly the same kind as exists in all civilized countries for weights and measure; only it must be international. As Malcolm Morris says in the *Practitioner* for May, this would eliminate the element of *chauvinisme*, on which Professor Behring lays great stress as a disturbing influence in scientific matters. Moreover, it would secure the uniformity in medication which is a necessary condition for the formation of an accurate judgment as to the therapeutic value of the remedy. Professor Behring says that all the scientific authorities to whom he has spoken on this subject, and particularly M. Roux, are in agreement with him as to the desirability of such an institute as he has in mind. He is indifferent what country may be chosen for the purpose, provided the thing is done. Professor Ferrannini suggests Switzerland as at once central and not likely to excite national jealousies.

**Canine Diphtheria.**—It has been hitherto believed that of the lower animals only cows, guinea-pigs, cats and some of the *aves* were capable of communicating diphtheria to the human family. But now it is reported that the health authorities of Akron, Ohio, have traced thirty cases and three deaths of this disease to a dog belonging to a milkman along whose route the cases occurred. Investigation of the milkman's premises disclosed, near the place where his milk cans were left over night, a dog-kennel, the occupant of which showed every symptom of diphtheria. Physicians said there was no doubt the dog had the disease. It had been sick three weeks. While the doctors went to the city to obtain tubes to take a bacteriologic culture of the substance from the animal's throat the dog escaped and has not since been seen. The cans to which the dog had access and the buildings were thoroughly disinfected and since then no new cases have developed. The dog has not yet been discovered and there is much alarm felt in consequence. President Sargent of the Sanitary Board is supported by leading physicians in his belief that the dog was the cause of the spread of the disease and is still disseminating the germs. A close watch is being kept for the animal. It is to be hoped in the interest of the etiology of diphtheria, that this dog may be found; he should be an historic animal. It should be mentioned, by the way, that a child suffering with the disease was discovered on the first inspection of the dairyman's farm, but this fact is relegated to proper insignificance by the statements that the farm was "in a cleanly condition, the peddler had not been near the little one and the milk he sold was secured at a distant farm." *Ergo*, it must have been the dog.

**The Archbishop of Dublin and Vaccination.**—Shall the clergy use their influence over their flocks to favor vaccination and thus prolong the lives of the latter? The *Independent* says, yes, and avers that a church magnate, no matter how exalted his position, can be engaged in no better business than keeping his sheep away from the variolous wolf. That paper shows that the French clergy did a great deal to popularize the use of vaccine in the early years of this century, and Jenner is reported to have himself taken pains to teach English clergymen how to introduce the lymph. The *Independent* adds the following: "Archbishop Walsh of Dublin,

is credited with issuing a regulation in his diocese, directing that 'no one child or adult shall be admitted to confirmation or instructions in preparation for it who has not been vaccinated, or who, having reached the age of 7 years, has not been vaccinated.' Upon this, one of our contemporaries remarks: "If autocratic power is to be lodged in the hands of a bishop, this may be a good use to make of it." But to what more beneficent use can the superior intelligence of the educated clergyman be put, than in preventing disease? Had he the power every one would agree that it was Christ-like to heal disease, and why is he not to be commended in taking a course that he undoubtedly sees the need of, among a peasantry that is still a long way from complete physiologic enlightenment. In the same week that the journals bring the above, we find another interesting newspaper item, the purport of which is given below: "L. T., a waitress employed at a boarding house where the Yale crew take their meals, was sent to the pest-house yesterday suffering with smallpox. One of the inmates of the boarding house is a certain unvaccinated freshman, whose home is in Newburg. His father is at the head of an anti-vaccination society in Newburg. The freshman refused to be vaccinated, and the faculty ordered the young man to leave the college and he left. Correspondence has been had with the authorities at Newburg, giving the facts in the case."

No sooner had Jenner announced his discovery than a knot of "*antis*" began their work, and they still have their followers, who deliberately set up their individual opinion in opposition to the general consensus of the thought of the world. The views of this one father look pretty small beside that of the whole Yale faculty.

**Health Reports.**—The following health reports have been received by the Supervising Surgeon-General M.-H. S.:

SMALLPOX—UNITED STATES.

New York City: May 25 to June, 1, 1 case.
Philadelphia: May 18 to 25, 7 cases, 2 deaths; May 7 to 28, 27 cases, 5 deaths.
Ohio: Cincinnati, May 9 to June 1, 21 cases, 5 deaths; Cleveland, May 7 to June 1, 7 cases; Gallipolis, May 7 to June 1, 1 case.
Indiana: Evansville, May 28, 1 case.
Wisconsin: Milwaukee, May 25 to June 1, 1 case.
Virginia: Staunton, May 28, 66 cases in smallpox hospital.

SMALLPOX—FOREIGN.

Athens: May 12 to 15, 31 cases.
Amsterdam: May 11 to 18, 1 case.
Antwerp: April 27 to May 4, 1 case; May 4 to 11, 2 cases.
Batoum: May 1 to 14, 4 cases, 4 deaths.
Bologna: May 11 to 18, 1 case.
Buda-Pesth: April 22 to May 13, 5 cases.
Cairo: April 22 to 29, 4 deaths.
Calcutta: April 20 to 27, 97 deaths.
Hong Kong: April 13 to 27, 2 deaths.
Madrid: May 5 to 12, 1 death.
Moscow: April 27 to May 4, 1 death.
Odessa: May 4 to 11, 5 cases. 2 deaths.
Rotterdam: May 11 to 18, 2 cases.
St. Petersburg: April 27 to May 11, 15 cases, 4 deaths.

CHOLERA—FOREIGN.

India: Calcutta, April 20 to 27, 60 deaths.
Asia Minor: Tarsus, cholera reported June 1, 1895.
Arabia: Mecca, April 22 to May 6, 213 cases.
Japan: Hiogo, 7 isolated cases; Osaka, 5 cases reported May 10.

YELLOW FEVER—FOREIGN.

Brazil: Santos, April 20 to 27, 76 cases, 65 deaths.
Mexico: Vera Cruz, May 16 to 23, 3 deaths.

The following letter has been received from Dr. Stuart Eldridge, Sanitary Inspector, M.-H.S., at Yokohoma:

No. 167 YOKOHAMA, May 10, 1895.

*Sir:*—The condition in Japan as regards cholera remains much as at the date of my last report. Single cases, rarely more, are reported from various localities in the region of the naval and military depots in the south, and isolated occurrences have been met with both in Hiogo (Kobe native town) and in Osaka. So far, however, the disease has nowhere assumed the proportions of an epidemic and the Japanese authorities are evidently controlling it in an exceptionally successful manner. How long they may be able to do so remains to be seen.

There is absolutely no question, but that, both in Hong Kong and Macao there have been cases of plague, though the usual attempts at concealment of the danger have been made. It is, however, to be hoped that the lesson of last year will not be lost, so far as the authorities of Hong Kong are concerned, and that, with the light of our new and more exact knowledge of the disease, more or less successful efforts at control will be made.

## ASSOCIATION NEWS.

**The Association Treasurer.**—Members are reminded that the annual subscription is now due and payable at the office of the TREASURER, HENRY P. NEWMAN, M.D., 36 Washington Street, Chicago, Ill. Those paying at Baltimore are exempt from this call.

We trust that as last year, we will be enabled to report that the losses by delinquency are almost nothing. The great increase of membership in the last two years is almost entirely owing to the small number relinquishing membership. The gains at each annual meeting have been considerable for some time but until the enlargement of the JOURNAL last year, the losses were only a little less than the gains. Let us remember that by solidly supporting the ASSOCIATION and its JOURNAL, we are doing our part in that great work of professional organization so grandly going forward. Let us all send our remittance promptly to TREASURER NEWMAN, and whenever possible the name of a new member along with it. Let us not grow weary in the good work. Have *you*, dear reader, obtained a new member this year? One determined effort, dear friends, and your ASSOCIATION may easily become the greatest medical association in the civilized world. If you need application blanks cut them out of the JOURNAL or apply to this office and they will be promptly furnished.

## NECROLOGY.

MATTHEW H. BURTON, M.D., formerly of Troy, died at Bay Shore, N. Y., April 28, 1895, in his sixty-third year. His father, Dr. Caspar Van Wie Burton, formerly of Lansingburg, was a member of the AMERICAN MEDICAL ASSOCIATION from 1849; the son, Matthew H., from 1869. Father and son were prominent in the State Medical Society, the father even down to 1860, the year of his death. The son was early a prominent member in the New York Medical Association; he had been president of the Rensselaer County Medical Society. His place of birth was Albany, and it was from the medical college at that city that he graduated in 1853. He was early and long attached to the Marshall Infirmary of Troy, an institution established in 1851 and opened in 1854, one of whose departments is concerned in the care of the insane. At the time of his demise he was making his home with his daughter, Mrs. Plumb, at Islip, where he had been ill a period of eight or more weeks from acute nephritis. His mortal remains rest in the cemetery at Troy.

JAMES G. PORTEOUS, M.D., died suddenly of valvular disease of the heart at Poughkeepsie, N. Y., May 12. He had just returned from Baltimore, where he was a delegate to the convention of the AMERICAN MEDICAL ASSOCIATION. He was born at Moriah, Essex County, on Jan. 3, 1839. He was graduated at Harvard University in 1862, and immediately entered the Army. He served throughout the war with distinction as Surgeon of the 118th and 46th New York Regiments. He was known as the "fighting surgeon," and was specially commended by Gen. Benjamin F. Butler for bravery on the field at Fort Harrison. After the war he settled at Luzerne, N. Y., and practiced his profession. He served three terms as supervisor, and was a member of the Assembly in 1872. In 1880 he removed to Poughkeepsie, where he resided until his death. He was a member of the Loyal Legion and a Mason of high degree. He leaves a widow and three daughters.

ELWOOD S. LANSING, M.D., of Burlington, N. J., died May

29. He was the son of the late Ten Eyck Lansing of Albany, N. Y., where he was born in July, 1827. He took his medical degree when he was 22 years old at the College of Physicians and Surgeons, New York. He was brother to the member of Congress, Mr. Lansing of Watertown, N. Y., and was himself mentioned at one time in connection with the Democratic Congressional nomination from New Jersey. He had served in the common council of Burlington, N. J., several terms, and had held other offices in the city and county. The deceased leaves a widow and a family of adult children.

HENRY P. HALL, M.D., of Jamestown, N. Y., died May 27, aged 60 years. He was an alumnus of the Buffalo Medical College in the class of 1868. He had held the office of Pension Examiner under the present administration.

DANIEL F. GULLIVER, M.D., of Norwichtown, Conn., May 22, aged 69.——John Harris Grimes, M.D., of Mishawaka, Ind., May 25, aged 42.——D. W. Grimes, M.D., of Johnstown, Pa., May 25.——Henry P. Hall, of Jamestown, N. Y., May 26, aged 59.——George E. Law, of Brooklyn, N. Y., aged 35.

## MISCELLANY.

**He Remains a Frenchman.**—A cable dispatch of the 28th ult. quotes from the Paris *Figaro* a statement to the effect that the German Emperor recently sounded M. Pasteur as to his acceptance of a decoration upon the occasion of the opening of the Baltic Sea canal, and that the French scientist refused to accept the honor, declaring that he would never forget 1870. We hope to soon see an authoritative contradiction of this.

**Concentrated Boric-Acid Solutions.**—By heating boric acid to 47 degrees C. with gelatin, a mass is obtained which contains 68 per cent. of boric acid. This emulsion dissolves in water with great facility and consequently a boric-acid solution may be prepared of any strength.[1]

**Dr. Seaver,** director of the Yale gymnasium, has prepared a table showing the physical development of students entering that institution from the preparatory schools. The following schools are given in the order of their excellence in these respects: St. Paul, Exeter, Williston, Lawrenceville, Hopkins' Grammar School, Andover, Hartford High School, Hillhouse High School. Attention is called to the fact that the schools having physical instructors send their graduates in the best physical condition.

**A New York Police Surgeon's Certificate.**—At a recent meeting of the new Police Board of New York City, one of the unfortunates who were brought "under fire" was a police surgeon of the old variety, who had written a certificate in which appeared the word "abaration" for "aberration." Did he go through the old-time Civil Service exams.? The board will sit upon the case at a trial presently to be held.

**Charitable Bequests at Boston.**—Under the will of the late Matwin M. Ballou, of Boston, Mass., the following hospitals will receive $2,000 each: New England Hospital for Women and Children and the Boston Children's Hospital. Sums of $2,000 are donated to certain other deserving organizations, $20,000 in all, to take effect at the death of the widow of devisor.

**Medical Peerages Created in Austria.**—The Medical *Press* states that "Dr. Edouard Albert, Professor of Clinical Surgery, and Dr. Hermann von Widerhofer, Professor of Children's Diseases in the University of Vienna, have been created Life Members of the Austrian House of Lords. The other representatives of medicine in the Austrian Upper House are Dr. Ernest Ludwig, Professor of Medical Chemistry, and Dr. Schneider, both of whom are members of the Aulic or Privy Council."

**A Dangerous Kind of Sneak-thief.**—Nearly all the servants of doctors have been warned against the possibly thievish visitors who call at their offices out of office hours and who ask to be allowed to wait long enough to write the doctor a note, or some "dodge" of that nature. The "dodge" has taken this new phase lately, namely, the artful dodger claims to be a physician and calls upon a dentist whom he knows to be absent. He will generally be allowed to wait a little while—and he does wait only just long enough to lay his hands on some article of value and then excuse himself.

**Post-Mortem Hyperpyrexia.**—The following conversation is alleged to have taken place between a clergyman and one of his lady parishioners: "I don't see your husband with you so much as when you were on your honeymoon," said the clergyman, as he met an occasional attendant at his church. "Has he grown cool?" "Not if what you preach be true," she said coyly. "He is dead."

**Some Military Don'ts.**—According to one of our military journals the following instructions have been put into the hands of every French soldier proceeding to Madagascar: never go out without wearing your helmet, not even when the sky is cloudy. When bathing never lie down on the ground; be content with sitting on your pack. Never go out fasting; never drink anything but boiled water, tea and coffee; never leave off your stomach flannel; never on any account drink alcohol or eat fruit, even though it resembles ours.

**"Good Will" Recognized.**—It is so rare that the "good will" of a practice has any value, that we make note of the following news item from the New York papers, which shows that a dentist can sometimes get an injunction to protect his "territory." The Dr. Fenn named below is a medical graduate, who appears to have gone into dental practice. Dentist William W. Niles has obtained an injunction from Judge McAdam, of the Superior Court, restraining Dr. Elisha Fenn from practicing as a dentist in the territory bounded by the Harlem River, Seventeenth Street and East and North Rivers. Dr. Niles said he purchased Dr. Fenn's business upon the distinct understanding that Dr. Fenn would not open another office within the district mentioned.

**The Siamese Twins of New York City.**—The Academy of Medicine had an opportunity to inspect the twins of Mrs. Koehler on May 27. Dr. Tynberg has found seven recorded instances of joined twins similar to these, but Dr. Jacobi says the number should be higher, eleven at least. Dr. Tynberg's remarks included the following: "These two children were born at midnight on April 15. They are joined from about the third rib down to the coccyx by a heavy ligament. There is no other juncture that I have been able to discover, and I do not think that they are, like other cases similar to this, dependent upon a common arterial system. They are distinct and separate children, except in this particular, and I think that when they have grown older they can be safely separated." At the conclusion of Dr. Tynberg's remarks the children were taken into another room, where they were undressed and shown to the physicians who wished to make a closer inspection of the remarkable case. Both children are healthy and strong and are perfectly developed.

**Absorbent Power of the Human Bladder.**—The permeability of the bladder with intact epithelium having been in turn contested and admitted as a result of experiments on animals, Poussen and Sigalas determined to repeat these experiments in man, and have reported the results of their researches to the Paris Academy of Sciences. They made use of a lithium salt injected into the bladder. The least trace of this salt in the blood and the saliva may be easily and surely detected by spectroscopic analysis. Their experiments were carried out on four individuals, three healthy and one with cystitis, and their conclusions are: 1, healthy

[1] National Druggist, March, 1895.

vesical epithelium is impermeable; 2, absorption occurs *a*, when the epithelium is altered pathologically; *b*, when the individual, even with healthy vesical epithelium urinates—the urine then bathing the prostatic part of the urethra.[1]

**Horse Chestnuts as Food for Animals.**—During the disastrous year of 1893 many farmers applied to M. Cornevin for advice as to whether to use horse chestnuts for their stock in lieu of other forage destroyed by the drought. Some authors claim that these nuts will be readily eaten and constitute healthy nourishment; others claim that they are eaten with reluctance or even rejected altogether. The author undertook a series of experiments to settle this question, using the shelled nuts. He found that sheep may eat as much as a half kilo of fresh nuts daily and cows two kilos. Ducks are poisoned by eight to fifty grains, and hogs refuse them absolutely. Heating and prolonged maceration diminish the toxicity of *Aesculus hippocastanum*, and Cornevin thinks this toxicity is due to the presence of a substance resembling saponine or colchinine.[2]

**An Example to be Followed.**—Dr. Andrew Auvan, of Emmitsburg, Md., who was 90 years old on April 27, has contributed $50 to the Rush Monument Fund. His father, Dr. Robert Landales Auvan, was a student of Dr. Rush, and his certificate of qualification for the practice of medicine is now in the possession of the latter's grandson, Dr. Robert L. Auvan, of Emmitsburg. It is hoped that this example will be followed by physicians from every part of the country, that the statue may be completed without further delay. Delegates to the recent meeting at Baltimore are reminded that they were constituted members of the Rush Monument Committee by their own unanimous vote, and that it was made their duty to obtain contributions from the members of the Societies they represented in the Association, which they are requested to transmit, as promptly as possible to Dr. George H. Rohé, Superintendent of the State Hospital for the Insane, at Catonsville, Md., Secretary of the Committee, or to Dr. Albert L. Gihon, Medical Director U. S. Navy, Washington, D. C,. Chairman.

**Disagreement over Advertisements.**—The New York County Medical Society has had a wrangle at its last meeting regarding the alleged unethical advertisements that appear in that Society's yearly *Register*. An optician takes a half-page space in which to make known how he can cure headache, nervousness, neuralgia, sore eyes and the like by the adaptation of spectacles. Dr. Van Leer moved that the editor of the *Register* be directed to strike out the advertisement or buy off the advertiser, on the ground that the claim of these sorts of advertising opticians was an infringement of the law against the unqualified practice of medicine, *i. e.*, quackery. Such advertisements are bad enough in the papers throughout the country, he averred, but even worse in the organ of an influential medical society. Dr. Lewis, one of the editors, took the ground that the advertisement should be allowed to remain, first, because the *Register* had a contract with the alleged offender, and second, because the statements of the optician were true ones and great credit was due the optician, who was capable of doing much good. This statement is alleged to have staggered the audience.

**Heavy Verdict for a Physician.**—At Brooklyn, N. Y., Dr. J. R. Quinn has recovered $8,000 for injury caused by a brewer's truck colliding with the Doctor's vehicle and throwing him to the pavement. The defense attempted to show that the physician was driving on the wrong side of the street when the accident occurred. He was in one track and the brewery wagon in the other. He claimed the heavy horses suddenly swerved from the track and struck his phaeton. But it was shown that both the tracks were to the east of the center of the street and the Doctor was on the left side of the center. Testimony was introduced to show that this position was necessary, as the pavement was torn up and the cobblestones piled at the westerly or right side of the street. The court held that when there were obstructions in the traveled part of the street, narrowing the passable portion, drivers were obliged to go to the right of the center of what was left. This the Doctor said he was doing at the time. The question is a new one and will be carried up on appeal.

**Recent Improvements of the London Hospital.**—According to the *Press and Circular*, a stained glass window containing the coats of arms and crests of past presidents or consulting members of the staff of the London Hospital has just been erected in the library of the London Hospital Medical College. The window contains thirty-two shields, on which are displayed the armorial bearings of the gentlemen formerly connected with the staff, and includes those of Dr. John Andree, the first physician, and Mr. John Harrison, the first surgeon, appointed in 1740. There are also the coats of arms of Sir William Blizard, Sir Andrew Clark, and Messrs. Richard Clement Headington, John Goldyer, Andrew James Luke, Thomas Blizard Curling, and Jonathan Hutchinson, all at one time or another Presidents of the Royal College of Physicians and Surgeons. It is hoped in time to add the armorial bearings of many others, whose descendants have not yet been traced. The trustees of the hospital have purchased the lease of a house in Bow Road for the preliminary training of nurses during their periods of probation before entering upon hospital work. These pupil probationers besides being taught how to tend the sick will receive instructions in elementary physiology, anatomy, hygiene, sick cookery, etc., and preference will be given to those between the ages of 25 and 35 who have received a good education.

## Hospital Notes.

The trustees of Johns Hopkins Hospital have decided to erect an addition to the dispensary of that institution. The building will be of brick of the same style as the other buildings and will contain three rooms.——The corner stone of the new St. Johnsbury Hospital at Bennington, Va., was laid May 26. The hospital will be of brick, three stories high and will cost over $10,000.——The Children's Hospital at Philadelphia will be enlarged this year by the erection of a three-story building.

## Society Notes.

The Annual Meeting of the Medico-Legal Society of Chicago was held June 1. The following officers were elected for the ensuing year: President, Edmond J. Doering; Vice-Presidents, C. D. Wescott and Sanger Brown; Treasurer, Joseph Matteson; Secretary, John Ridlon.—— The forty-seventh annual meeting of the Mitchell District Medical Society will be held at West Baden Springs, Ind., July 5 and 6. The meeting will be one of exceptional interest.

## Washington Notes.

Dr. S. C. Busey.—Dr. Busey has almost entirely recovered from his injury and will leave shortly for Narragansett.

Dr. J. Ford Thompson is rapidly improving at Atlantic City.

Medical Society of the District.—The work of the Society during the month of May was interesting and instructive, as may be seen from the following papers which were read and discussed: Dr. William Osler, of Baltimore, Md., The Practical Outcome of Laveran's Researches on Malaria; Dr. T. Clark, Remarks on the Therapeutics of Diarrhea in Infants; Dr. Bedford Brown, of Alexandria, Va., Non-infectious Membranous Laryngitis—Its Prevention and Medical Treatment; Dr. Stowell, Neuralgia of the Throat; Dr. Kelley, Cases and Specimens of Stone removed from Female Bladder by Laparotomy, and Fibroid Tumor of Uterus with Pel-

[1] La Semaine Medicale, No. 23, 1895.
[2] Les Nouveaux Remedes, April 24, 1895.

vic Abscess and Abscess of Appendix Vermiformis; Dr. S. M. Burnett, Clinical Contribution to Study of Nuclear Paralysis of the Ocular Muscles; Dr. Leach, Cystitis; Dr. Harvey Reed, U. S. A., What Credence Should be given to the Statement of those who claim to furnish Vaccine Lymph free of Bacteria? Dr. Dufour, Tumor of the Brain—Case and Specimen.

THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—On May 17 Dr. J. Tabor Johnson gave the history and presented the specimen from a case of oöphorectomy (double) for nervous symptoms—and a specimen supposed to be extra-uterine gestation. Dr. H. L. E. Johnson presented the specimen and gave the history of three laparotomy cases—two cases of double ovariotomy, one cyst of tube and ovary. To one case he called special attention. M. J., (white), age 21 years, invalid more or less for six years, entirely blind in right eye for one year. Sight returned on second day after removal of small ovarian cysts of both ovaries. He called attention to the relation of ocular diseases to pelvic troubles in women. He intends presenting a paper on the subject at a later date and requested all physicians acquainted with similar cases to furnish him with their clinical notes. He referred to a recent paper on the subject by S. C. Ayres, M.D.

### Louisville Notes.

CHAPMAN.—Louisville has sustained a great loss in the death of Dr. W. Carroll Chapman, who died at his residence in this city on the 28th inst. of cerebro-spinal fever, after a twelve days' illness. Dr. Chapman had just returned from the last meeting of the AMERICAN MEDICAL ASSOCIATION and was feeling unusually well. He had a severe chill and fever following, his illness being attributed to a sharp attack of malaria; but each day he became worse, his symptoms more marked and he died as above stated, on the twelfth day. Few young men in the profession had as bright a future before them as did Dr. Chapman. He was born in Hartford, Ky., in 1863, and received his early education at St. Cecilian College, where he graduated at the age of 17. He began reading medicine with his preceptor at once, and later attended the College of Physicians and Surgeons of Baltimore, graduating there in 1884. He worked for some time in the out-door department of the college, was made an Assistant Demonstrator of Anatomy, and later received the appointment as Resident Physician at the Maternity Hospital, remaining one year. He returned to Kentucky, and practiced his profession in his native city, moving to this city about eight years ago. At the time of his death he was assistant to the Chairs of Practice and Chemical Physiology in the Kentucky School of Medicine; a member of the Louisville Academy of Medicine, before which he read a paper recently (published in the JOURNAL) on "Gastritis;" a member of the Kentucky State Medical Society, where he was to read a paper at the next meeting on "The Chemic Changes in the Stomach as a Cause of Disease," the data of the paper being made up from original investigations conducted by him in the dispensary of the Kentucky School of Medicine; he was also a member of the publication committee of the State Society; a member of the AMERICAN MEDICAL ASSOCIATION, having just returned from Baltimore when taken sick; a member of the American Medical Editors Association, having been editor of the *Progress* for some years.

Resolutions of respect were passed by his associates, members of the Sub-Faculty of the Kentucky School of Medicine, the class at this school, and the Louisville Academy of Medicine.

HOMEOPATHIC SOCIETY.—The Kentucky State Homeopathic Society was in session in this city during the past week, and while in session received a communication from one Dr. (?) Trunnell, purporting to be from Dr. Ronald, one of our oldest and most respected physicians. The communication was written by Dr. Trunnell, in which he used Dr. Ronald's name inviting the homeopathic physicians to join in the formation of a Mutual Protective Association, which was to look after the widows and destitute orphans of deceased physicians of the State. Members of the society addressed were elated at what they construed to be a more liberal attitude of the "old school" toward them and accepted the invitation. Dr. Ronald came out in a card in one of the afternoon papers and repudiated the whole thing, stating that he was not the author of the letter of invitation, did not know it had been written, and was greatly surprised that such liberties should be taken with his name.

LEACHMAN.—Dr. W. T. Leachman is dangerously ill at his residence in this city.

STATE SOCIETY.—The State Society meets in Harrodsburg on June 12, 13, and 14. Among those from Louisville who will contribute papers are the following: the Care of the Newborn, by Henry E. Tuley; Rectal Disease as a Specialty, by J. M. Mathews; The Blind of Kentucky, by J. Morrison Ray; the Serum Treatment of Diphtheria, by W. Cheatham; Treatment of Puerperal Sepsis, by Louis Frank; Modern Methods of Intestinal Anastomosis, by Aug. Schachner; Adenoid Growths of the Naso-Pharynx, by T. C. Evans; Some Reflections on the Therapeutics of Nervous Disease, by Curran Pope; Treatment and Protection of the Eye after Cataract Operation, by P. R. Taylor; Parasitic Diseases of the Skin, by W. R. Blue; Manifestations of the Rheumatic State in Children, by S. E. Woody.

HEALTH OFFICER'S REPORT.—During the past month there were 227 deaths; during the past week 64. Deaths corresponding month last year, 253. Estimated population, 200,000; estimated white population, 164,246; estimated colored population, 35,734. During the month of May, consumption was the cause of 34 deaths, pneumonia 35, cerebral meningitis 17, organic heart disease 12, and there were 15 stillbirths.

## THE PUBLIC SERVICE.

**Navy Changes.** Changes in the Medical Corps of the U. S. Navy for the week ending June 1, 1895.

Medical Inspector T. C. WALTON, ordered to examination preliminary to promotion as Medical Director.

Medical Directors G. S. BEARDSLEY, B. H. KIDDER and W. K. VAN REYPEN, ordered as a board to examine medical officers for promotion.

Medical Director N. L. BATES, Medical Inspector J. M. FLINT and P. A. Surgeon J. D. GATEWOOD, ordered as a board to revise the Book of Instructions for Medical Officers.

**Marine-Hospital Changes.** Official list of changes of stations and duties of medical officers of the U. S. Marine-Hospital Service, for the sixteen days ended May 31, 1895.

Surgeon J. B. HAMILTON, granted leave of absence for five days, May 16, 1895.

Surgeon G. W. STONER, granted leave of absence for one day, May 22, 1895.

Surgeon F. W. MEAD, to proceed to Portland, Maine, and assume command of Service, May 18, 1895.

P. A. Surgeon J. J. KINYOUN, granted leave of absence for seven days, May 20, 1895.

P. A. Surgeon R. M. WOODWARD, granted leave of absence for thirty days, May 23, 1895.

P. A. Surgeon G. B. YOUNG, detailed to make physical examination of officer, revenue cutter service, May 24, 1895.

P. A. Surgeon M. J. ROSENAU, to proceed to Staunton, Va., for special temporary duty, May 17, 1895.

Asst. Surgeon SEATON NORMAN, to rejoin station at Baltimore, Md., May 25, 1895.

Asst. Surgeon EMIL PROCHAZKA, to proceed to Cleveland, Ohio, for temporary duty, May 25, 1895.

### LETTERS RECEIVED

Antikamnia Chemical Co., (2) St. Louis, Mo.; Ashmead, A. S., New York, N. Y.; Amen & Hiestand, Hillsboro, Ohio; Ayer, N. W. & Sons, Philadelphia, Pa.; Adams, S. S., Washington, D. C.

Baker, Jas. B., Charlottesville, Va.; Bovee, J. W., Washington, D. C.; Barber, C. T., Brooklyn, N. Y.; Bowker, H. M., Boston, Mass.; Brayton, L. T., Chicago, Ill.; Bodine, J. M., Louisville, Ky.; Biddle, A. G., Detroit, Mich.

Cannaday, C. G., Roanoke, Va.; Canfield, W. B., Baltimore, Md.; Chamberlain, C. N., Andover, Mass.; Chicago Policlinic, Chicago, Ill.; Copeland, J. E., Round Hill, Va.; Culbertson, J. C., Cincinnati, Ohio.

Ewing, F. C., St. Louis, Mo.; Ellis, H. Bert., Los Angeles, Cal.; Etinger, C. S., New York, N. Y.

Fowler, S. S. Martiensville, Pa.

Galvano Faradic Mfg. Co., New York, N. Y.; Girard, A. C., Fort Sheridan, Ill.; Graham, J. W., Denver, Colo.; Gardner, R. W., New York, N. Y.

Holton, Henry D., Brattleboro, Vt.; Ham & Carver, Dubuque, Iowa; Horner, Frederick, Marshall, Va.; Hubbard, Thos. H., Columbus, Ohio; Hammond, W. A., Washington, D. C.; Hester, W. W., Chicago, Ill.; Haldenstein, J., New York, N. Y.

Jones, Harry C., New York, N. Y.; Johnson, G. J., Chicago, Ill.

Leedom, Chas., Philadelphia, Pa.; Lindholm, E. M., St. Paul, Minn.

Martin, F. H., Chicago, Ill.; Marks, A. A., New York, N. Y.; Malsbary, Geo. E., Cincinnati, Ohio.

Newman, Robert, New York City, N. Y.

O'Brien, M. C., New York, N. Y.

Palmer, E. R., Louisville, Ky.; Phelps, R. M. Rochester, Minn.; Parmele, C. R., New York, N. Y.

Rohé, Geo. H., Baltimore, Md.; Remick, A. E., Chicago, Ill.

Subscription News Co., Chicago, Ill.; Sternberg, Geo. M., Washington, D. C.; Stearns, F. & Co., Detroit, Mich.

Truesdale, C. C., Rock Island, Ill.; Trimble, J. R., Baltimore, Md.

Vetter, J. C. & Co., New York, N. Y.

Wyckoff, R. M., Brooklyn, N. Y.; Warren, C. E., Roslindale, Mass.; Wheaton, C. A., St. Paul, Minn.; Western Publishing House, Chicago, Ill.; Wanzer, L. M. F., San Francisco, Cal.; Ward, R. C., Northfield, Mass.